ENGINEERING and MINING JOURNAL.

VOL. XXVII., No. 17.

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CONTENTS.

	PAGE.
EDITORIALS:	
American Society of Civil Engineers.	291
The American Iron and Steel Association	291
American Institute of Mining Engineers	291
Leadville Lodes	291
Anthracite Coal Tonnage	291
The Vanderbilt Purchase	291
Steel from Phosphoric Irons	291
Compulsory Examinations of Mining Companies	292
British Exports of Railway Iron	292
New Publications	292
The Gold Mining District of Dahlonega, Ga	293
Two Sides to Mr. Vanderbilt's Purchase of English Rails	294
A Visit to a Mining District in China	295
Montana Mining Notes	298
Lodes and Laws at Leadville	298
PROGRESS IN SCIENCE AND THE ARTS:	
Edison's Electro-Chemical Telphone	296
Germany's Underground Telegraphic System	296
The Observatory on Mount Etna	296
Balloon Experiments	296
Scientific News	296
The Australian Exhibition	296
The Paris Exhibition Reports	296
Steel from Phosphoretic Ores	296
Malleable Cast-Iron	296
Copper and Nitrate of Soda	296
Rock-Salt in Nevada	296
American Petroleum Abroad	296
Geographical Notes	296
Japanese Courtesies to Travelers	290
A New Explosive	296
Chlorophyl	297
Compressed Flour	297
To Render Leaden Water-Conduits Harmless	297
Glass Millstones	297
The Canal Across the American Isthmus	297
The American Inland Sea	297
The Suez Canal	297
Interior Sea in Algeria	297
The Wooten Dust-Burning Furnace	297
Noiseless Ware	297
Iron Cross-Ties	297
Opium Industry in the United States	297
The Eads Jetties	297
NOTES:	
International Exhibition at Antwerp	293
The Durham Strike	295
Coal Miners' Strike in Indiana	297
The Chesapeake and Delaware Canal	297
Colliers' Strike in Pennsylvania	
Colliery Disasters	298
The Southern Pacific Railroad	298
GENERAL MINING NEWS:	
Colorado	299
Dakota	299
Montana	299
Nevada	299
New Mexico	300
Utah	300
NEW PATENTS	300
PROPOSALS	300
THE COAL TRADE REVIEW	301
IRON MARKET REVIEW	302
STATISTICS OF COAL PRODUCTION	301
FREIGHTS	302
METALS	302
BULLION MARKET	303
FINANCIAL:	
The Coal Stocks	304
Miscellaneous Stocks and Quotations	303
Gas Stocks	304
Gold and Silver Stocks	304
Copper Stocks	307

AMERICAN SOCIETY OF CIVIL ENGINEERS.

The Eleventh Annual Convention will be held at Cleveland, Ohio, beginning June 17th, 1879.

Details of programme will be issued to members in a short time.

JOHN BOGART, Secretary.

THE AMERICAN IRON AND STEEL ASSOCIATION.

Special arrangements for reduced fares have been made for the Mass Meeting of the Iron Trade at Pittsburg, on May 6th, with the Pennsylvania Railroad Company, over its main line and Eastern connections, extending from Baltimore on the south to Boston on the east. Gentlemen desiring to avail themselves of low rates of fare can, by addressing this office, procure orders for excursion tickets. Without these orders, nobody can obtain excursion tickets from ticket agents. JAMES M. SWANK,

PHILADELPHIA, April 22, 1879. Secretary.

AMERICAN INSTITUTE OF MINING ENGINEERS.

The next meeting of the Institute will be held in Pittsburg, beginning Tuesday, May 13th, at three o'clock P.M.

Due notice will be given of the programme of the meeting as arranged by the local committee.

Members and associates are requested to give early notice to the Secretary of their intention to read papers at the meeting.

It is expected that the excursions will be of an attractive character, and that there will be a large attendance of ladies.

THOMAS M. DROWN, Secretary.

LEADVILLE LODES.

We publish elsewhere a very intelligent letter from a correspondent at Leadville, which states, as well as language without diagrams can do so, some curious actual and hypothetical problems under the mining law. We are too sensible of the difficulties of the case to undertake, off-hand, to answer all questions of this kind. Perhaps we may take them up hereafter at leisure. But we heartily agree with our correspondent that surface locations, with vertical bounding planes, would be the best—provided the locations were large enough, and the system could be made acceptable to the people. The practical difficulties, however, as we have heretofore shown, are very great; and meanwhile, the Leadville people will have to make the best of the law as it is. *

ANTHRACITE COAL TONNAGE.

According to Mr. JOHN H. JONES, the accountant of the late coal combination, the coal tonnage for March, 1879, was 1,936,912 tons, and in the same month last year, 812,511 tons, showing an increase in March of this year of 1,124,401·03. The stock of coal at the shipping points at the end of the month was 630,614 tons, against 536,464 tons at the same date last year. The following is a comparison of the tonnage for the first three months of 1879 and 1878:

	1879. Tons.	1878. Tons.	Increase. Tons.
Philadelphia & Reading RR	1,370,263	500,056	870,207
Lehigh Valley RR	826,884	631,637	195,248
Central RR. of N. J	785,773	359,558	426,215
Delaware, Lackawanna & Western RR	750,461	437,044	313,417
Delaware & Hudson Canal Co	582,294	533,768	48,526
Pennsylvania RR	292,159	201,011	91,148
Pennsylvania Coal Co	276,546	160,449	116,097
New York, Lake Erie & Western RR	72,530	57,501	15,029
	4,956,910	2,881,024	2,075,887

THE VANDERBILT PURCHASE.

Mr. D. J. MORRELL, as President of the Iron and Steel Association, has published a letter on the subject of the recent purchase by Mr. VANDERBILT of 12,000 tons of English rails, in which he assumes that hostility to American makers was the cause of the act, and that slanders upon American makers have been advanced to explain it. On such assumptions, he proceeds to attack Mr. VANDERBILT bitterly, and to tell a profane anecdote about the late Commodore VANDERBILT'S impoliteness toward the late JOHN A. GRISWOLD. Mr. VANDERBILT'S contemptuous reply to this attack gives him the best of the fight so far. It is pity that Mr. MORRELL should have put himself in the wrong by his manner of opening the subject. From all that we can learn about the transaction, we infer that the real reasons for it have not been fully disclosed. It has been suggested that the rails purchased were to be partly or wholly laid in Canada. It has also been suggested that the American works, which are full of orders, were not able to deliver as promptly as was in this case desired. Whatever may have been the motive, we do not believe that the President of the New York Central has been acting, as Mr. MORRELL declares, out of pure spite.

Mr. MORRELL will soon have to take the field as the champion of American steel-makers against the Free-traders in Congress. And as we may be inclined to support him in opposing any measure which would be oppressive to this great industry, we hope he will keep his temper, be sure of his facts, and omit, in future, anecdotes about the manners of persons deceased, who can no longer influence either the revenue laws or the rail market. *

STEEL FROM PHOSPHORIC IRONS.

There is lightning all around the horizon—the vivid gleam of phosphorus, departing from iron. Several practicable solutions seem to have been successfully proved at once, for the great problem of steel practice—the elimination of phosphorus in the converter and the open hearth. Mr. LOWTHIAN BELL has succeeded in dephosphorizing Middlesborough pig (containing about 1·5 per cent of phosphorus) by melting iron ore in it in an ordinary puddling furnace. Dr. SIEMENS has eliminated phosphorus at Landore by his direct process. Herr KRUPP does the same thing in a Pernot furnace, with additions of oxides of iron and manganese, or in a Danks-shaped furnace with Bessemer tuyeres, basic linings being necessary in both cases. PONSARD'S *Ferro-Convertisseur*, a combination of the open-hearth and pneumatic processes, is claimed to have sensibly reduced (we believe not fully eliminated) phosphorus from the pig-iron treated by it. Mechanical puddling is known to remove, at Creusot, 90 per cent of the phosphorus from pig-iron; and Mr. SELLERS, in this country, has accomplished equally good results. Last, but not least, the experiments of SNELUS, and more recently of THOMAS and GILCHRIST in England, with others reported by Prof. GRUNER in France, show that the maintenance of a basic slag in the Bessemer converter or the open-hearth furnace is enough to effect the elimination of phosphorus from the bath. There is apparently going to be a lively dispute as to priority of invention, on which point we express no opinion. But one thing is plain. The cheap and easy dephosphorization of pig-iron is a fact accomplished. What it will do for the iron and steel industry remains to be seen.

In our own country it seems likely to diminish the demand and price of "Bessemer ores." Perhaps it will check the great importation of Spanish and African hematites, and at the same time relieve our steel manufacturers from their dependence upon the ores of Lake Superior, Lake Champlain, etc. The *American Manufacturer* points out that it will give

the death-blow to the puddling furnace. This is indeed a probable, if not an immediate, result.

Perhaps the benefit to be expected from this change in steel-metallurgy will be greatest in England. The manufacture of steel from the exceedingly cheap Cleveland pig will open a new hope to the failing industry of that region. That it will make the competition of British manufacturers, even against our tariff, more dangerous to American works, is to be expected. But American works, though of course they could not bear the violent blow which the abolition of the present tariff would inflict, may be relied upon to take care of themselves without any new protection.

*

COMPULSORY EXAMINATIONS OF MINING COMPANIES.

The second number of a new semi-monthly journal, called *Bullion*, edited by Mr. R. C. STONE, of this city, lies upon our table. The editor disclaims connection with the "Bullion Club." The Gold and Silver Producers' Company, which publishes the journal as an adjunct to its business, is designed to assist in organizing syndicates to purchase, or companies to operate, mines; to act as transfer agent, obtain special reports from reliable experts, practical miners, and ore-reducers at lowest rates; furnish estimates for machinery and supplies, etc. Mining agencies of this kind have not thriven, as a general rule. But perhaps there will be business enough for this one. At all events, so long as it is useful, we wish it well. Apart from its character as a means of advertising the agency, *Bullion* is a neatly-printed sheet (with a preposterous pictorial heading), containing much matter of interest. Our friendly advice to the editor is not to attempt too much. Having found the bullion reports of the leading mining journals "almost meaningless," he proposes to do better, by sending blanks to every producer, express agent, etc., that will fill and return them; and gives specimens of the preliminary and supplemental monthly or semi-monthly reports which he expects to rake in from the continent by this means. It is a beautiful vision which we are loth to dissipate; but we must venture, as veterans, to suggest kindly to our enthusiastic new recruit that the tactics are not absolutely new. We fear *Bullion* will find that private interest, not the general welfare, leads people to fill blanks voluntarily, and that the same private interest often colors the reports they make; so that the information thus collected is sure to be scanty and liable to be worthless. However, by taking pains enough and spending money enough, our young contemporary may accomplish valuable results; and for all the trustworthy information it may collect, the public will be grateful.

But *Bullion* goes further, and demands a "national law, supplemented by local legislation, that all gold and silver mining corporations shall make, at least semi-annually, public exhibits of their operations and condition; that all U. S. mineral surveyors shall have the right to examine the mines and books of any precious metal mining corporation at any time; and that, upon a request in writing from the holders of say 15 per cent of the capital stock of any such corporation, the U. S. deputy mineral surveyor located nearest to the property thereof shall make examination and report to each stockholder of record, at the expense of the corporation." This law must be made effective by due penalties; and *Bullion* will present hereafter a draft of the necessary statute.

We should like to know under what clause of the Constitution such a law could be dreamed of; why it should be confined to gold and silver mining companies, and not extended to other mining companies, or to all corporations; what there is about a deputy mineral surveyor that makes him competent to examine books and accounts, or even mines and machinery and furnaces; why 15 per cent of the stock should be necessary to obtain that examination of books and property which a single stockholder has the legal right to demand; why 85 per cent of the stockholders should have to pay for an examination they do not desire, by a man they do not know or trust, to satisfy the curiosity of the other 15 per cent; and so on.

Bullion must begin at the beginning, and learn the difference between private and public business. The ownership of the public lands gives the U. S. government certain powers in fixing the conditions on which they may be occupied or sold. After having issued a patent for mining property, the government has no more right to interfere with its management than if it were a farm, or a shoe-factory, or a newspaper. Nor does the ownership by a corporation alter the case. Corporations sustain certain relations, regulated by law, to their stockholders and their creditors. Their relation to the national government is whatever their contracts, if they have made any, determine. We know of no way in which the government could compel them to expose their business operations and condition. A bullion tax would strike individuals as well as corporations, and would be considered (as it has been considered in the past), whether truly or not, an unjust and unwise discrimination against a particular industry.

The different States, it is true, have powers in this direction which the federal government does not possess. Whatever is necessary for the safety and peace of their citizens, they may enact. But the present experience of California may well instruct those who think unlimited interference with corporations is wise administration. That State is threatened with serious loss from the withdrawal or diversion of capital; because reckless and ignorant men are trying to override the right of corporations to manage their own affairs.

The rights of stockholders and creditors are amply protected already by local laws. The public not included in these two classes has no rights in the matter. The State governments can claim nothing more than the statistics of production, etc., which may be needed as a basis of legislation; and these, as experience shows, can be obtained as well without compulsion as with it.

It would be very pleasant and useful, no doubt, to have full reports of the mining industry; and it would be praiseworthy for the Gold and Silver Producers' Company to collect and publish the returns of those metals, just as other associations and individuals do for iron and steel, copper, lead, and coal. But the impertinent and tyrannical interference by the government in private business is too dear a price to pay.

*

BRITISH EXPORTS OF RAILWAY IRON.

From the circular of W. W. & C. Richardson, of London, we take the following, showing the exports of railway iron and steel from Great Britain for the periods mentioned:

To	Three months ending March 31st.			To	Three months ending March 31st.		
	1877. Tons.	1878. Tons.	1879. Tons.		1877. Tons.	1878. Tons.	1879. Tons.
United States	762	109	1,184	Sweden and Norway	1,853	7,978	5,244
Russia	7,516	2,745	29	Chili	507	135	584
Turkey	5	7	462	Denmark	200	862	30
British India	16,800	38,594	31,088	Peru	3	839	983
British North America	879	633	627	France	11	40	38
Egypt	133	2,251	1,288	Germany	480	15,349	513
Australia	12,774	19,673	19,235	Belgium	50	80	.....
Brazil	6,450	5,320	10,781	Italy	1,512	542	1,742
Holland	580	4	23	Other countries	10,954	8,235	7,731
Spain and Canaries	6,315	6,361	4,169	Total	67,784	109,757	85,751
Estimated total of iron rails					30,385	36,186	10,505
" " steel rails					28,741	47,290	52,504
Total of rails					59,126	83,476	63,009

NEW PUBLICATIONS.

SECOND GEOLOGICAL SURVEY OF PENNSYLVANIA. E. *Special Report on the Trap Dykes and Azoic Rocks of Southeastern Pennsylvania.* By T. STERRY HUNT. PART I. *Historical Introduction.* Harrisburg, 1878.

The way in which "one thing leads to another" in matters of scientific investigation, is curiously illustrated by this volume. In 1875, the Board of Commissioners resolved to invite Dr. HUNT to make a special examination and report on the trap rocks of Pennsylvania. The task had no sooner been undertaken than it became evident that a study of the Azoic rocks of the State would be involved. And at the very outset of this arose the necessity of a summary of the views and observations of American and Canadian geologists in the great Azoic realm. Hence, we have, as the first volume of Dr. HUNT's report on Pennsylvania traps, a history of the investigations and controversies of geologists concerning the crystalline schists, and other pre-Silurian formations. This expansion of the original plan would be fortunate, even if it were arbitrary. But it has grown out of the nature of the case by irresistible logic. For the traps can not be described until it is settled what rocks are included under that name, and what are their relations to the rocks among which they occur. The vague and elastic character of the term "trap," even in scientific literature, and still more in popular usage, is notorious. Rocks of widely various origin and character have been at one time or another included under it. A history of the word and its applications would involve the discussion of the questions of dynamical and chemical geology around which the progress of that science in field and laboratory has revolved for a generation, as the wheels of an advancing chariot revolve around their axles. So great has been the change in the theoretical views of geologists, that the classical works on the subject are no longer authoritative, and the conflicting classifications embodied in different State reports can scarcely be compared, not to say reconciled, by the ordinary student.

Prof. H. D. ROGERS divided the rocks below the uncrystalline Paleozoic sediments into Azoic and Hypozoic, the latter comprising the most ancient, gneissic series. FOSTER and WHITNEY included both these classes in their Azoic, and, in common with contemporary geologists, classed as igneous or eruptive many rocks which later investigations have shown with more or less probability to be stratified or indigenous masses. In this category Dr. HUNT mentions the gneisses, quartzose porphyries, greenstones, serpentines, hypersthene-rock, certain crystalline limestones and quartzites, and the masses of magnetic and specular iron ores. With regard to many, if not all of these, the controversy as to their origin may be regarded as settled against the plutonic view, once so general and, under all the circumstances, so natural. This is particularly true of the

iron ore-deposits. But there still remain unquestionably intruded rocks, such as certain granites, trachytes, dolerites, etc.; and there are also concretionary veinstones, granitic and other, which can neither be classed as intercolated sediments nor as erupted masses. The earlier geologists of this continent can not be blamed for the incompleteness of their views. The field was too vast and too little known to permit accurate generalizations. If American geology has been revolutionized by the combined labors of the outdoor observers and the chemists, the same may be said of European geology.

A still more difficult and confused debate, not yet terminated, concerns the relations and classification of the older Paleozoic rocks and the crystalline groups below them. Our literature is full of special contributions to this controversy. Considering the extent of the formations referred to, in Canada, New England, the Middle and Southern States, Michigan and Missouri, to say nothing of the great West, and considering how many independent observers and theorists have been, as Prof. LESLEY happily phrases it, "half despairingly at work" at the "problems of superposition, unconformability, and identification," we can not wonder that hypotheses should be numerous and contradictory, or that Dr. HUNT should recognize the need, as an indispensable preliminary to prepare the student for an adequate discussion of all these questions, of "a historical and critical review of the progress of our knowledge of the older rocks of North America."

The fact that for more than thirty years Dr. HUNT has been an active participant in the investigations and controversies to be reviewed, and that many, though not all, of the views of which he has been the author or the champion have won their way to a very general acceptance, lends peculiar value to his review, while, on the other hand, it can not be denied that such a preparation to some extent prevents him from assuming a perfectly judicial attitude. He has been too large a part of the history to be simply and purely the historian. But he has, so far as we can see, treated the work of other geologists with admirable candor; and particularly with regard to the merits, often underestimated or overlooked, of such pioneers as MACLURE, EATON, MATHER, and EMMONS, he has done much for justice. Prof. LESLEY'S introductory letter shows that in some important points the geologists of the Pennsylvania corps do not agree with Dr. HUNT'S identifications of crystalline schists in that State, and betrays Prof. LESLEY'S expectation that Dr. HUNT may be proved in error, as, for instance, with regard to the relationships of the slates of the great valley. But, as he says, "it is impossible yet for any competent judge to express a positive opinion respecting the value of such terms as Montalban, Norian, etc., in Pennsylvania." The truth is, that Dr. HUNT has attempted, on stratigraphical and petrographical grounds, a grand generalization concerning the ancient crystalline rocks; and while geologists are still weighing the evidence as to its validity in Canada and New England, he startles them by extending it over the rest of the world. The patient verification of this brilliant hypothesis is too great a work for any one man; but what its author should do, and is doing, is to place his own view clearly on record, to be confirmed or perfected in detail by the multiplied labors of others.

Mr. ALFRED R. C. SELWYN, the present Director of the Canada Survey, in a paper read February 24th, 1879, before the Natural History Society, on the Stratigraphy of the Quebec Group and the Older Crystalline Rocks of Canada, criticises the views advanced by Dr. HUNT in many respects, while he speaks of the volume as containing much valuable and interesting historical information. He thinks "there are very few who would agree with Dr. HUNT, in the general proposition that the diorites and serpentines of the Quebec group are of sedimentary origin, and the amygdaloids altered argillites." He cites PUMPELLY and IRVING to show that the precise relations of the almost identical rocks of Lake Superior are not certainly determined. He objects to HUNT'S stratigraphy as not in accordance with the latest observations. And he says, in conclusion, that he fails to see "that any useful purpose is accomplished, in the present state of our knowledge of the stratigraphical relations of the great groups of rocks which underlie the lowest known Silurian or Cambrian formations, by the introduction of a number of new names, such as those proposed by Dr. HUNT, for systems which are entirely theoretical," in which category he includes the Norian, Montalban, Taconian, and Keeweenian.

We have only to say on this controversy, what we have said before, that Dr. HUNT'S classification must stand the test of stratigraphical investigations, or it must fall. The mineralogical argument, however striking and ingenious, is not enough to support such a theory. On the other hand, the stratigraphical argument is only to be perfected by repeated observations of independent observers. Doctors may disagree for a time; but the facts remain beyond obliteration, and sooner or later they will be read aright.

That part of the volume before us for which we are most grateful to Dr. HUNT is its clear and compact survey of the famous discussion upon the Taconic system of EMMONS. The carelessness with which that really great geologist conducted his own part in the debate, contradicting, disproving, and amending his own views as freely as those of his antagonists, makes it difficult, even for those who have access to all the literature of the case, to comprehend and trace the progress of the conflict. That EMMONS was right, in a sense and with limitations which he would have repudiated, is perhaps to be the final verdict. Dr. HUNT is a welcome guide through the labyrinthine debate. *

THE GOLD-MINING DISTRICT OF DAHLONEGA, GA.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: On my return from Georgia, I noticed a card in your journal of the 19th inst. from a Mr. Arnold Davidson, President of the "Etowah & Battle Branch Hydraulic Hose Mining Company of Georgia," stating that he had notified the Dahlonega Gold Mining Company that, after thirty days from the 7th day of April, his company could not furnish us with water from their main ditch, unless some further arrangements were made, etc. Now this is very considerate, not knowing that any arrangement ever had been made; and as the Dahlonega Company has been in full possession of said ditch for about seven years, and reconstructed and extended it some five or six miles. As to our "paper title," Hezekiah Kelley, Esq., a large owner and operator in mines and mining lands, built this ditch in 1859, buying the right of way and many lots of land through which this ditch runs. When the war broke out, he was obliged to leave that part of the country. When the war closed, Colonel Kelley returned and took possession of his lands and ditch, placed the same in the hands of his attorney, the Hon. I. A. Wimpy, to sell and dispose of for him. Upon examination of the records of Lumpkin County, Ga., I found the only legal title to said ditch to be the Kelley title. The Dahlonega Company, being then in possession, purchased it of Colonel Wimpy and took warranty deeds, all of which are matters of record and the only title of record in that county; which makes a notice to quit as effective as was the "Pope's bull against the comet." Our so-called "paper title" is quite as good as one of no evidence of a title except paper squibs, evidently gotten up to affect the stock market. I feel it but justice to our numerous stockholders to make this explanation, trusting you will give us the privilege of answering the notice referred to.

L. L. LOMBARD, President Dahlonega Gold Mining Co.

NEW YORK, April 23, 1879.

OFFICE OF THE ETOWAH & BATTLE BRANCH HYDRAULIC HOSE MINING COMPANY OF GEORGIA.

EDITOR ENGINEERING AND MINING JOURNAL:

In the above letter Mr. Lombard claims that the only legal title to the ditch is in Hezekiah Kelly, but forgets to state that this Mr. Kelly was one of the original incorporators named in the charter of my company, and that this Mr. Kelly parted nineteen (19) years ago with his part of the legal title to this ditch and all its easements, by two warranty deeds to the remaining incorporators, Messrs. Eastman and Denny, of Boston, Mass., and to their legal successors. These deeds, to show that we have "evidence of title," are dated December 23d, 1859, and March 6th, 1860, as recorded in Book "P," pages 58 and 128, in the Records of Lumpkin County, at Dahlonega, Ga., *q. v.*

If Mr. Lombard, knowing this, buys of Mr. Wimpy a paper title purporting to be signed by this same Mr. Kelly, after Mr. Kelly had disclaimed any ownership in this ditch, and executed twelve (12) years after our warranty deeds to the same, Mr. L. does so unquestionably not expecting to retain possession of the ditch after May 7th, according to my notice to his company to quit tenancy on April 7th, but for the purpose of having the right to claim a paper title. In parentheses, this notice was not a Pope's bull against the comet, but my edict against a plan-et.

Further, Mr. Lombard says he claims under the "Hon." Mr. Wimpy. This Wimpy is the nigger in the wood-pile, and the gentleman who contrived the scheme to blackmail us. In two suits entered by him for this purpose, he has been utterly defeated and thrown out of court; and Mr. Lombard knows it. He will not deny that Wimpy lost the injunction and the equity suit, as he, to watch the proceedings, attended personally at Dahlonega; and if the quotation from a letter from him while there to a gentleman in your city is correct, that, by Wimpy losing this suit, the Dahlonega Co. won the same, I must acknowledge that Mr. Lombard's logic is past my comprehension.

If the Dahlonega Co. had a *bonâ-fide* title to this important ditch, they would unequivocally have stated so in their sworn statement to the New York Mining Stock Exchange when listing their stock. But this sworn statement does not claim one inch of this ditch; *vide* records of the New York Mining Stock Exchange.

As our stock is not listed, nor otherwise on the market, I fail to see how my statement can affect our shares. It may affect claims based on paper titles. *Sauve qui peut.* Respectfully, ARNOLD DAVIDSON,

President Etowah & Battle Branch H. H. Mining Co. of Georgia.

INDUSTRIAL EXHIBITION AT ANTWERP.—The United States Consul at Antwerp informs the Department of State that an Industrial Exhibition will be opened in Antwerp in August, 1879. Space has been allotted for American products. Correspondence may be opened with and consignments sent to S. H. Haine, 39 Rue Honblonnière, Antwerp, Belgium, who will take charge of American goods. Goods should be in Antwerp before the 1st of August next.

THE EXPORTS of iron from Great Britain to the United States for the three months ended March 31st, 1879, compared with the same periods of 1878 and 1877, were:

IRON, ETC.	1879.	1878.	1877.
	Tons.	Tons.	Tons.
Iron—Pig	9,792	5,341	11,033
" Bar, angle, bolt, and rod	715	1,626	831
" Railroad, of all sorts	1,184	109	762
" Hoops, sheets, and plates	235	156	606
" Cast or wrought, and all other manufactures unenumerated	1,798	548	657
Tin plates	32,993	24,139	22,778
Exports of all kinds of iron and steel to all countries	499,100	486,506	446,519

TWO SIDES TO MR. VANDERBILT'S PURCHASE OF ENGLISH RAILS.

OFFICE OF THE AMERICAN IRON AND STEEL ASSOCIATION,
No. 265 SOUTH FOURTH STREET,
PHILADELPHIA, April 15, 1879.

To the Editor of the Tribune:

SIR: Having received a number of letters, addressed to me as President of the American Iron and Steel Association, asking me to give my views in regards to the correctness of the statement made by a "prominent official" of the New York Central Railroad Company to a *Tribune* reporter, as printed in your paper of the 11th inst., I take this method of making a general reply. The purchase of this lot of 12,000 tons of English steel rails, at a cost of at least $12 per ton over the price at which American rails could have been placed on the line of the New York Central Railroad, would have surprised me if it had been made by almost any one else than Mr. Vanderbilt; but, knowing the anti-American sentiment—if I may not say prejudice—which has prevailed in the government of that road for many years, I was not unprepared for the folly it has committed.

It is barely possible that Mr. Vanderbilt may think he is justified in paying the difference named for English rails; but such a supposition is not creditable to his intelligence, and the statement of the "prominent official," that it is well known among railroad men that the utmost limit of wear for American steel rails, as now manufactured, is five years, when they are subjected to the strain of heavy traffic, such as continually passes over the New York Central Railroad, is such a bold assertion of what is absolutely and entirely untrue that I must suppose it to be the result of blind ignorance. That some American steel rails may not, under certain conditions, last five years, or even one year, may be true, and it is equally true of foreign rails. The usual guarantee of American rails is five years' wear, with an agreement to replace all such as give out from fair usage within that time; and for *this* guarantee no extra charge is made. It is not fair for Mr. Vanderbilt to suppose that all American manufacturers of steel rails are so stupid as to make an inferior article, when, with the best of materials to start with, they can, with the practice of intelligence and skill, make a good rail with just as little cost as they can an inferior rail.

It takes some little time and experience to come to the best results in all trades; but there is perhaps no trade or process practiced in which the inducement to achieve the best possible results is so strong as in the making of steel rails, and the American makers have not been slow to learn that fact and to profit by it. As I have said above, it costs no more, with good material, to make a good rail than a poor one, and the result is that very few poor steel rails are being made by any manufacturer anywhere.

The hardness or temper of the rails is regulated by the amount of carbon the steel contains, and this is usually controlled by the roads that use them, some railroad managers requiring their rails much softer than others, preferring toughness and immunity against possible accidents from breaking, to the extreme hardness which would insure greater endurance. American rails have been used for more than ten years on many of our leading roads, and for the last six to eight years more than a million and a half tons have been put down, and I am ignorant of the first instance of any such complaint as would justify the assertion so boldly made by this "prominent official;" indeed, I *know exactly to the contrary.*

In every large lot of rails there is a liability to be a few imperfect ones, from flaws in the ingot, or from mechanical defects which can not be detected by the closest and most careful inspection; but these imperfections usually disclose themselves during the first few months' service. This is equally true of English as well as American rails. The number of rails so failing within five years is so inconsiderable that the guarantee has never been considered any great hardship to manufacturers. If the utmost life of the American rails is limited to five years, as asserted by a "prominent official," the New York Central might have its road kept constantly supplied with new rails under the usual American guarantee, without any expense to the company beyond the first outlay.

The twelve-year guarantee is what Mr. Vanderbilt claims as his justification for sending his money abroad rather than giving it to the American people, who alone furnish the traffic upon which his road prospers. If he lays these English rails upon easy grades and straight lines, and keeps his road-bed in good order, the guarantee will cost the makers nothing beyond the few rails that may fail from undetected mechanical defects; and such would be the result with American rails; but if he lays them on steep grades and short curves, or in his yards where shifting is being done with heavy locomotives constantly stopping and starting, he will have to call on his English friends to replace his rails, many of them inside of five years, and a large majority, if not all of them, within the twelve years.

As far as I have heard, the New York Central Railroad has never been very friendly to American rail-makers, certainly not since it came under the Vanderbilt rule. I am not aware that Mr. Vanderbilt has ever asked for twelve years' guarantee from American makers, or even asked from them, certainly not from very many of them, at what price or on what terms they would supply his wants. His purchase of these foreign rails would seem to have some other motive than the one given. The "economy" plea is too thin for credence.

It is possible that Mr. Vanderbilt wishes in this way to call the attention of the country to the policy of protection, which is at this time securing to the American mills orders from all roads but this one, and that he intends to make an assault upon the American system, which secures the American markets to American producers, and, under domestic competition, brings prices lower than his English friends would sell him, provided that competition was removed. He should remember his 40,000-ton contract with English makers at $112 gold, which was not completed until American competition had reduced the cost here to about one half that price.

I remember once meeting my esteemed friend, the late Hon. John A. Griswold, in New York, shortly after he had established the Bessemer works at Troy, and was not a little surprised to find him in an unusually excited frame of mind for one of his ordinarily calm and quiet and *always* amiable and gentlemanly disposition; and upon inquiring what had happened to so disturb him, he replied that, in anticipation of finding encouragement, and perhaps patronage, from the New York Central Railroad in his new enterprise, his works being located on its line, and giving it a large amount of traffic, he had that morning called on Commodore Vanderbilt at his office, having this end in view. After having waited in the ante-room somewhat beyond the usual time, he was at length surprised by the Commodore's making his appearance in the doorway leading to his private room, holding in his hand the card which Mr. Griswold had sent in; and demanding in a loud voice, so that others sitting there waiting, like himself, couldn't help but hear, "Who in h—l is this man, John A. Griswold, who wants to see me?" Mr. Griswold rose, and, merely remarking that he called expecting to meet a gentleman, but, being disappointed, would retire, he *did* retire, and I think he never afterward sought an interview with Mr. Vanderbilt. If they had any future business transactions, they were certainly of Mr. Vanderbilt's seeking. Possibly the present Mr. Vanderbilt may be cherishing something of the same sentiment, and when a "prominent official" makes him say "he has a perfect right to make his purchases of materials where he chooses," wouldn't he perhaps be a little nearer the mark were he to go on a little further, and make him exclaim, as his father did to Mr. Griswold: "Who the h—l are these American rail-makers, that they should be meddling with my affairs?"

Whatever reasons the New York Central Railroad may have for not using American rails, economy is surely not one of them. There can be no economy in buying foreign rails, no better than our own, at an advance of at least twenty-five per cent. If Mr. Vanderbilt owns this road—all of it—he certainly has a right to do with it as he pleases. He can knock it in the head at once, or he can give it a more lingering death by a constant but gradual exercise of this sort of economy. If it is all his road, and all his money that is thus fooled away, it would seem as though he would perhaps have the worst of it in the end, and outsiders need have little or nothing to say; but he has no right to injure American manufacturers by giving false reasons for such folly.

Yours truly,
D. J. MORRELL,
President of the American Iron and Steel Association.

We copy from the Syracuse (N. Y.) *Evening Herald* the following open letter:

To Hon. D. J. Morrell, President, etc.:

SIR: In your letter to the *Tribune*, dated April 15th, 1879, you speak contemptuously of "the anti-American sentiment, if not prejudice, in the government of that (the Central) road," etc. Did any prejudice ever exist in the mind of administrative men without some cause? You admit that it is possible that Mr. Vanderbilt may think that he is justified in paying the difference in the cost of the English rails, but say that "such a supposition is not creditable to his intelligence," adding that the statement that American rails will wear on his road only five years is "absolutely and entirely false," and presumably due to "blind ignorance." This, it seems to me, is most unjust, as Mr. Vanderbilt has not the reputation of being either a knave or a fool; and assertions without facts are not very convincing by way of argument.

Again you say: "Some American steel rails may not, under certain conditions, last five years, or even one year." May not these be the kind Mr. Vanderbilt has tried? And may not his road supply the conditions hinted at by you?

You say that it is not fair for Mr. Vanderbilt to suppose that all American steel-rail makers are so stupid as to make an inferior rail when they can just as well make a good one. Is it fair, either, for you to call him ignorant of his own business? Why is he not as competent to judge of the wearing quality of rails on his road as any other man is to judge of the business which comes daily under his eye? I think, from what I know of the working of this road, that he is quite as competent. I have watched the road grow from the day the first track was laid. I think that there are some brains connected with it at this time; and I doubt not that all the data concerning the wear of rails are collected in New York, and as well compiled as on any road in the country, and that in this compilation of facts, proved by the tests of years and not mere snap-judgments, we may find the key to the mystery of the recent purchase.

You say that it takes time and experience to reach the best results in all trades. This is, so far as I know, true. You say, further, that it costs no more to make good steel rails than to make poor ones, and that, as a consequence, very few poor ones are made. That there is very little poor steel made, I agree; but that there are many tons of poor rails made of steel in this country, truth compels me to declare, and I believe I have the facts to prove it.

You say that the hardness or temper of rails is regulated by the amount of carbon the steel contains, and that this is usually controlled by the roads which use them. But does not some other element, which you have overlooked, enter into the composition of rails to affect their wearing quality, and may not this element be found in the English and not in the American rails? I think so. Your broad assertion intimates that you know the contrary. I would simply ask: Have you all the facts that Mr. Vanderbilt has as to the wear of rails on his road? Why shall we not believe his statement that the wear is only five years on his road, knowing that he has the figures before him, quite as readily as your statement, unless you can show that you have the same data to go upon? I do not consider this question merely one of years; I regard the wearing life of a rail to be a question of wheels and tonnage and not of time. Hence the twelve years guarantee, in my opinion, really means nothing unless it includes a specification of the number of wheels and tons which enter into the estimate of a day or other stated period. I do not for a moment fancy that Mr. Vanderbilt is going to pick out the particular places for laying the rails he has bought, but I assume that a fair proportion of them will go upon grades and curves, and that he has made his contracts so strong and so minute in detail that, if the rails do not prove equal to the guarantee, the company of whom he purchased them will be obliged to make good the accruing damage.

That Mr. Vanderbilt has any hostility whatever to any manufacturing interest in America, I have no idea; but I believe that he bought the rails in question in good faith, and on the merits of their wearing qualities as he understood them. You try to throw discredit on his alleged motive

of economy, but again, without bringing forward a single fact. The cant term, "too thin," I scarcely need tell you is no argument.

You attribute to Mr. Vanderbilt, in discussing the probable effect of his conduct, the foresight of a statesman, the wisdom of a political economist, and the shrewdness of an accomplished financier—all this after having called his purchase "folly," and having charitably explained it as the fruit of "blind ignorance." You then allude to a former purchase, in which the Central road is supposed to have sustained a loss. Is this fair? Is it a fact that the reduction of price to which you allude was actually brought about by American competition? Has there not been a settling down of prices in every department of industry the world over? Has not this reduction extended not only to rails of steel but also to rails of iron and to every branch of iron manufacture?

Your reference to the unguarded remarks of Mr. Vanderbilt's dead father is foreign to the matter in hand and quite uncalled for. You have, by your own tacit admission, heard but one side of that story, which presumably had two sides. Equally undignified and insulting is your attempt to put blasphemous words into the mouth of a gentleman who has not uttered them.

You say that there can be no economy in the purchase of foreign rails no better than our own. If they were really no better, there would be some force in your remarks. But once more I must ask you, are you in possession of all the facts? I take it that a man with the ability which you concede to Mr. Vanderbilt does not buy several thousand tons of rails at the price he paid without a reason for doing so; and it seems to me that it would be wiser for you and the steel-rail makers of this country to try to discover that reason and the facts underlying it instead of falling back idly on the "hostility and prejudice" argument, or other not less empty talk about what the owner of a road may do with your property.

You say that Mr. Vanderbilt has no right to injure American manufacturers by giving a false explanation of his acts. I do not believe that his explanation is false; but, if it were, how could it injure any American manufacturer who made as good rails as his English competitors? Is not truth mighty, and will it not prevail? My notion is, that facts are facts, and will not give way before mere sophistry.

I have suggested already that there might be an element in English steel-rail manufacture which does not enter into the same industry in America. That element has been overlooked by our producers, and should have their attention. The steel rails made in England, and rolled on two-high trains, are better for wear—the chemical constituents of the steel being the same—than the rails made in this country, and rolled on a three-high train; not because the train is a three-high or a two-high train, but because the rail, when it is finished, is colder, and is left in a more condensed condition, and, therefore, better prepared to receive the wear of wheels. In other words, it is stronger and tougher. I have stated the fact to several steel-rail makers, and they heeded it not; perhaps they will hereafter. I am prepared to show at my works that this is true, and any steel-maker can test it for himself in a few hours. If your train will stand it, roll your rail until the scale will set, and you will then make better rails than the English. That rails rolled as I direct will and do last longer than those made and finished hotter, I am fully convinced, and I am equally sure that the reason therefor is the one I have given. I do not believe that the English rail-makers understand this, and that they continue to use the two-high train and hold back the work for a purpose. I do not believe they know any thing about it; but my idea is, that they have used the two-high train for reasons set forth in a paper read, I think, by some eminent manufacturer before the Iron and Steel Institute of England a few years ago, and which Mr. Holley answered at the time.

Were I a railroad manager, I would have all my rails rolled for the last three passes in a chilled roll, with grooves polished, and let them be rolled so cold that the scale would set. Thus I should bring the steel to a condition adapted for the longest wear, the safest condition in which it can be left.

Mr. Dudley, of the Pennsylvania Railroad, has touched, I think, on the probable virtue of a proper process of steel manipulation. He is the only person besides myself who, so far as I know, has ever suggested any thing pertaining to the proper finish of rails.

I should have sent this letter to the *Tribune*, where yours appeared, but I have been denied the liberty of its columns. If, in the course of my early remarks, I seem to have fallen into your own fault of making statements without citing corroborative facts, it has been rather for lack of space than for lack of facts, and shall be most happy at any time to furnish the reasons for the faith that is in me if you will do me the honor to name the point on which you wish for further information.

I am, my dear sir, yours truly, W. A. SWEET.

A VISIT TO A MINING DISTRICT IN CHINA.

By G. J. Morrison, M. Inst. C.E., in "The Builder."

In China, that great land of undeveloped wealth, there are villages and whole districts where all the men one sees are covered, I might almost say clothed, with coal-dust, for they wear little else in summer; and where, as there are no railways, one meets long trains of coal-laden mules, asses, or camels, according to the nature of the country.

About ten or twelve miles to the west of Peking runs a river called the Hun Ho. This is a shallow river, fordable in many places in dry weather, but after heavy rains it is subject to great floods, which make its passage difficult and dangerous, even by a ferry-boat. There is, however, one bridge across it, which is always available.

Peking is situated on an immense plain, but immediately to the west of the Hun Ho the country becomes hilly. Mount Conolly, as it is called by foreigners, which rises to a height of 5000 feet or 6000 feet above the sea, is the highest peak in the immediate neighborhood. The whole of these hills abound in coal, and the district is generally termed by foreigners the Chai Taeng district, from the name of a village about forty miles from Peking, and near which some of the best coal mines are situated. Being in the neighborhood in August, 1877, I had an opportunity of forming one of a party to visit these hills. The party consisted of Mr. Nicolson, of the diplomatic service; Mr. Brenan, of the consular service (who is thoroughly acquainted with the colloquial language); and myself.

Having started early one Monday morning, we crossed the Hun Ho by a ferry at a village called Ma Yu, and at once began to ascend the mountain road leading to the mines. By ten o'clock we reached the entrance to the Ta Yao, or great mine, situated about eighteen miles west of Peking, and 1050 feet above the sea.

The mines here are not worked as most mines are in England, by shafts sunk vertically, but by "adits" or entrances from the side of the hill, as is sometimes done at home. The people look for some place where the seam of coal crops out at the surface. They then begin making a tunnel about four feet wide, and four feet six inches high, carefully lining the side and roof with timber, so as to prevent any of the earth falling in, and they work on in this way until they have arrived at good solid coal, with firm rock above and below, the portion near the surface being generally more or less loose and broken up. When they are fairly in the solid coal, they begin working out coal to the right and the left, as well as in front. If they were to work out a large area without taking any precaution, the roof would fall in; they therefore place temporary props of timber where they are working, and, in addition, they carry forward their main road by carefully continuing the timber work of the tunnel, and also on each side, outside the timber, building a wall of the rubbish which is excavated with the coal; so that, even if the roof of any portion of the working falls, they are sure of having a road through which they can reach the solid coal further in. The coal, when originally deposited, was no doubt level; but since that date, there have been great upheavals of the strata, and much of the coal now lies at a very steep angle, sometimes as much as sixty degrees to the horizontal. The road or tunnel, therefore, following as it does the seam of coal, is sometimes flat and sometimes steep; and as various local causes make it convenient, during the progress of the work, to carry the road to one side or the other, it happens that the main road in an old mine is as crooked as a corkscrew. There is yet one other peculiarity. Although the tunnel is begun so large that a man can enter by stooping, it often happens that, when the seam is thin and the roof and floor composed of hard rock, the miners grudge the expense of cutting it, and the road, therefore, gets lower and lower, until the final limit is reached of a road so low that a man can only just crawl through it.

Now, having come to see the mines, I was determined to enter into one and see the workings for myself. We therefore addressed ourselves to some miners whom we found at the mouth of the Ta Yao. At first they thought it was all a joke, and it was a considerable time before they could be persuaded that I was in earnest. Then they said it was impossible; that one foreigner had tried some years previously and had failed; that I would ruin my clothes; and made various other objections; but finally we prevailed. And so, divesting myself of most of my clothing, I took a lamp and prepared to follow my guide to the depths of the mine. The lamp was a curiosity in its way. In principle it was the same as the ordinary open lamp used in the Scottish mines; but in general appearance it resembled a teapot without a handle. It was carried by a string passed around the head; and, being globular, it rolled about a great deal, and as it must have weighed over one and a quarter pounds, it was a serious addition to the troubles of the journey.

On entering, I found that all along the floors there was laid a ladder about two feet wide, having good large rungs eight or nine inches apart. The ladder was roughly made, but was tolerably level on the upper surface. My guide, who at first took a fatherly interest in me, at once signed to me to walk on the rungs of the ladder, and not to let my foot slip between, as, in the event of there being a hole, I might break my leg. Very soon the road got so steep that I had to sit on the ladder, and let myself down gently, catching the rungs with my heels; then it became so steep that I had to turn my face to the ladder, and descend in the ordinary way. For about six hundred yards, the road was of this varied description, but rather steep on the whole. I estimated the total fall in this distance to be about five hundred feet. This part of the journey was tolerably easy. The roof was seldom less than three feet or three feet six inches high, so that the only difficulty consisted in passing the coal-drawers, to whom I shall refer presently. After the first six hundred yards, however, the affair changed. The road twisted a good deal, sometimes was up-hill, sometimes down, and sometimes level, and the roof was very low. The total length of this portion was one thousand or twelve hundred yards, and the total fall must have been between one hundred feet and two hundred feet. Along almost the whole of this it was necessary to go on hands and knees or hands and feet; but this was not the worst. In several places, the roof was so low that I could not go on hands or knees. I am, unfortunately, a trifle larger than an ordinary Chinese miner, and, not being acquainted with the place, I probably required one or two inches more space than I should otherwise have done; for it must be remembered that the roof is not smooth, and if one thinks he can crawl under a projecting stone, and is mistaken, he will be painfully reminded of his error by the loss of a large piece of skin from his back, if he is not more seriously hurt. There was but one way for it; and that was to lie on my face, stretch out my arms, and, resting my weight on my hands and elbows, drag myself forward. There were two or three places where I had to do this for a length of twenty yards at a time; and I was very glad when I arrived at the working face, a distance of about a mile from the entrance; and still more glad when I again reached the fresh air, after having spent about three hours below ground. The coal which is here being worked is a description of anthracite, but not so hard and clean as some found on the other side of the hill. The seam in this mine is only one foot nine inches to two feet thick.

(TO BE CONTINUED.)

THE DURHAM STRIKE.—The Durham miners have finally resolved, by a vote of 22,633 to 224, to continue the strike. The *Times's* correspondent at Newcastle-on-Tyne, commenting on the firmness shown by the Durham colliery strikers, says that in the great strike of 1844 the miners were less possessed of means even than they are now; yet such was their determination that they were able to hold out for something like four months. The present is in many respects a parallel case. Now, as then, the battle will be fought out on moral rather than financial grounds, and when the worst passions are aroused and the strongest prejudices offended, of a body numbering from 40,000 to 50,000 men, then the end is difficult indeed to forecast.

PROGRESS IN SCIENCE AND THE ARTS.

General Science.

Edison's Electro-Chemical Telephone.—Mr. Edison is reported to have lately improved his carbon telephone so much that, in conjunction with a magnetic receiver, it far surpasses, for power and clearness of articulation, every other instrument thus far constructed. In the description of the apparatus just received, it is explained that, although the carbon telephone possessed points of superiority over other systems, its power was limited to the capabilities of the receiver with which it was connected; and until the present improvement had been perfected and applied, no receiving telephone had been introduced that would do justice to the capabilities of the carbon transmitter. The improvement referred to is described as consisting of the application of the principle of the "electro-motograph" (an earlier invention of Edison's) to the construction of a telephone receiver; and the result is affirmed to be a remarkable increase and improvement in the power and qualities of the instrument. It is said to be quite unnecessary to go near the instrument to hear messages, as they are delivered in a loud, clear tone, audible in any part of the room; indeed, it is declared to be difficult to distinguish any difference in distinctness of articulation between its utterances and those of a person engaged in conversation. A full description of this important improvement will be found in the last issue of the *Scientific American*, to which we refer our readers for details.

The Underground Telegraphic System of Germany is being rapidly perfected, and within a year and a half it is expected to complete it. The empire will then be possessed of two lines traversing the country diagonally from extreme N.E. to S.W. and from extreme N.W. to S., crossing each other in Berlin; while the outlying towns and cities east, west, and south will be united with the system and each other by encircling subterranean lines. When the proposed system is completed, all the fortresses and commercial towns of any importance in Germany will be connected with one another by subterranean wires.

The Physical and Astronomical Observatory which is about to be erected on Mount Etna will be situated at the base of the cone of the volcano, somewhat more than 9600 feet above sea level. The situation is pronounced to be unequaled by that of any existing observatory. It will be placed under the directorship of Prof. Tacchini, of Palermo.

Experiments with the Balloon, to demonstrate the feasibility of a trans-Atlantic voyage, and possibly of the circumnavigation of the globe with its aid, are in contemplation by Mr. Samuel A. King, the aëronaut, who details his plans in a letter to the *Herald*. While admitting that the balloon, so far as its utility is concerned, stands to-day where the Montgolfiers left it a century ago, he is of opinion that much can be accomplished with it, slave to the wind though it is, by devising such improvements as will indefinitely prolong its carrying power.

Scientific News.—At the meeting of the New York Academy of Sciences, March 17th, Professor Egleston read a paper on "Prehistoric Mining at Lake Superior."——Appalachian Mountain Club (April 16th), Mr. Justin Winsor delivered an illustrated lecture on the Earliest Maps of the American Continent.——The latest issue of the *Journal of the American Chemical Society* contains, among articles of interest, a description of a new form of ozonator, by Professor A. R. Leeds; another, by the same author, on the influence of light on the decomposition of iodides, and notes upon "Chicle," a substitute for India-rubber, by Messrs. Prochazka and Endemann.——The monthly *Journal of Science* (London) for April has an excellent article, entitled "Is Nature Perfect?" another on "The Jablochkoff Candle and its Results in London" (Quinn); "On Painless Death" (from the *National Medical Review*), and the usual interesting body of scientific items.

The Australian Exhibition.—It is officially announced that the opening of the Exhibition at Sydney has been postponed until the first week in October. One large shipment of American manufactures has already been forwarded to the Exhibition from this port; and, for the information of intending exhibitors, it may be well to add that another vessel is announced to sail shortly. The first vessel carried, besides a variety of articles too miscellaneous to mention, samples of the following standard American goods, of which a good account will no doubt be rendered, to wit: Locomotives, organs, clocks, dental goods, stamped ware, scales, canned goods, and agricultural machinery. The United States has been allotted 40,000 square feet of space.

The Paris Exhibition Reports.—It affords us special satisfaction to notice that there is really some prospect that the reports of the United States Commissioners to the late Exhibition will see the light some time during the present year. The Commissioner-General, it is declared, has requested his assistants to complete and forward their reports by the first of April—a most inauspicious day; but we are reassured of the seriousness of the request by the subsequent declaration that the Commissioner-General expects to close up the business of his office by July first. The reports, which he hopes to place in government hands by May first, are expected to fill out four volumes, royal octavo.

Mining, Metallurgy, Geography, etc.

Steel from Phosphoretic Ores.—The recent announcement that a well-known firm of English steel-makers had succeeded in producing fine steel from highly phosphoretic ores, by employing in the Bessemer converter a lining of basic materials, instead of ganister, and by which it was claimed that "they would be able to make steel at a cost that would defy all competition," has called forth a multitude of comments, from a careful digest of which it would seem that the *Times* (London) was somewhat hasty in elevating a promising experimental trial of Mr. Thomas's lime lining to the rank of a practical commercial process. The New Castle *Daily Chronicle* reports that Mr. Thomas's experiments have been so successful that arrangements "are to be made for making steel from Cleveland ore by his process on an extensive scale." The *Iron and Coal Trades Review* believes that the *Times* paragraph is far in advance of the facts, and that, while there are strong grounds for the belief that the experiments at Middlesbrough are giving satisfactory results, those "who are acquainted with the difficulties which surround the question will easily understand that between 'satisfactory results' and 'commercial success' there lies a vast stretch of most difficult country." London *Iron*, a high metallurgical authority, refers to the announcement as premature and misleading. "The actual fact of the conversion of Cleveland pig is not new, and it remains to be seen how true it is that it can be operated on the large scale, and at such a price as to prove commercially remunerative. The experiments are not yet completed, so that the prophecy indulged in by certain enthusiastic newspaper correspondents is unfortunately premature." Dr. C. W. Siemens writes to the *Times* that the success of the new process will depend on the question whether such a lining as Mr. Thomas employs can be made to stand in practical working; and upon the percentage of phosphorus that can be removed through the action of the basic lining. He alludes to his own unsuccessful efforts (in 1868) to adapt a basic lining to his furnaces, one great difficulty he encountered being that of mending them when defective. Mr. Mushet, in the London *Iron Trade Exchange*, expresses his faith in the "ultimate" success of Mr. Thomas's lining, but questions whether the lime process of dephosphorization is the best. "It may be so," he adds, "and yet I shall not be surprised if another method, to which I have alluded in a separate letter, should eventually take the lead." Finally, it will be of interest to add that the English correspondent of the *American Manufacturer*, writing from Wolverhampton under date of April 5th, and purporting to give the latest news upon this important metallurgical novelty, asserts that "the complete success of the experiments of Messrs. Bolckow, Vaughan & Co. seems now to be an assured fact. It was yesterday conclusively shown that the stone (Cleveland ironstone) was capable of that dephosphorization which will make it fit to smelt ores into steel—making iron as pure, it is believed, as that from the hematite ores which have hitherto been deemed almost essential to the manufacture of reliable steel."

Malleable Cast-Iron.—M. Cordier, of Paris, has taken letters-patent for what is described as an important invention connected with the manufacture of malleable cast-iron, "the object of which is to convert Bessemer metal, and other similar metal, into a special cast metal, particularly applicable for the manufacture of malleable cast-iron. The product is between malleable cast-iron and ordinary gray pig-iron, and yields an excellent steel by puddling." The details, which are too lengthy to be reproduced here, will be found in *Ryland's Circular*, and in abstract in *Saward's* last issue.

Copper and Nitrate of Soda, which are the most important exports of Chili and Peru, are therefore likely to be materially affected by a prolonged war between these countries, an event that appears to be not improbable. The *American Mail* notes that Peru's annual production of nitrate foots up to 5,500,000 quintals, and Chili's annual copper product to about 50.000 tons. The impending war may, therefore, be expected to seriously unsettle the prices of these staples.

Rock-Salt in Nevada.—A correspondent writes to the *Druggists' Circular*, describing the occurrence of a large body of rock-salt in the southern part of Lincoln County, Nevada. The deposits consist of nine ledges, which are visible by outcroppings for about 16 miles. "The nine ledges are from 30 to 300 feet in thickness, and some specimens of the salt are clear enough to read a newspaper through them, though they are six inches in thickness." The south end of these great salt-beds is about seven miles from the head of navigation of the Colorado River.

American Petroleum Abroad.—The complaints concerning the growing deterioration in the quality of American petroleum received at foreign ports, of which we made mention in this department some weeks since, has found its first official expression in a convention of delegates from a number of Chambers of Commerce, lately held at Bremen, the proceedings of which assemblage have been transmitted by Mr. Wilson King, U. S. Consul at that port. The resolutions passed by the convention, for an account of which we are indebted to the *American Mail*, declare that the complaints of the inferior quality of the petroleum received from America of late are fully justified. They demand from American refiners that they give greater care to their refining, and that the inspectors more faithfully perform their duty. The convention, however, opposed the imposition by government of any unnecessary restriction on trade with the United States, in produce or provisions.

Geographical Notes.—A Russian "Imperial" expedition to Central Asia is projected, for the following objects: (1) To select the route for the Central Asian Railway; (2) to examine the navigability of the Oxus; and (3) to decide the practicability of diverting it into the Caspian.——The Congress on the means of creating an international canal across the American Isthmus will shortly be opened by the Society of Commercial Geography of Paris.——*Nature* reports that efforts will be made to train the African elephant as a bearer of burdens like his Indian cousin, and that an association has been formed to open up African trade by his means, in preference to the premature construction of railroads, which has been advocated in some quarters.——An Italian scientific expedition, under the leadership of Signor Matteuchi, is at present engaged in the exploration of the interior of Abyssinia, with the consent of the government.

The Japanese Government, it is reported, while insisting upon the strictest observation of treaty stipulations regarding routes of travel, etc., on the part of merchants and missionaries, not only allows to scientific travelers the fullest liberty to explore the country, but specially favors them by its encouragement.

Chemistry, Physics, and Technology.

A New Explosive, reported to be well adapted for military purposes, has been lately brought out by Nobel, the inventor of dynamite. We recorded some time since in the JOURNAL the fact that Nobel had succeeded, by dissolving gun-cotton in nitro-glycerine, in forming a gelatinous mass of high explosive qualities, which he termed explosive gelatine. Further experiment showed, as we learn from *Galignani's Messenger*, that by the addition of a little camphor to this gelatine a new compound was formed, admirably adapted for military purposes. The proportions are 4 parts of camphor to 96 of the gelatine; and the latter consists of 90 parts of nitro-glycerine and 10 of gun-cotton. The properties of this new explosive are thus given: The gelatinous mass is elastic, transparent of a pale-yellow color, and can be cut with a knife. It only ignites at

high temperature, and then burns freely in the air. It is indifferent to the action of water. It is solidified by cold to a substance resembling sugar-candy, and is in this condition more susceptible to mechanical action than when in its normal state. It can not be fired by a blow, even from a projectile. The difficulty of firing it has been overcome by the use of firing-cartridges made of 40 per cent nitro-hydro-cellulose and 60 per cent nitro-glycerine. (This first-named compound is made by the nitration of hydro-cellulose, formed by the action of sulphuric acid and cellulose.) With these cartridges the explosive gelatine is affirmed to be made as manageable as ordinary gunpowder, with less danger and far greater explosive force. A more detailed account of *Galignani's* article may be consulted in the *Scientific American* of April 26th.

Chlorophyl for Vegetable Food Preparations.—Some time ago we briefly chronicled the fact that a process had been successfully worked in France for obtaining chlorophyl—the natural green coloring matter of plants—in quantity, and for "fixing" it on vegetable food preparations, by adding the same to them, thus restoring the green color which is natural to them in the fresh state, and which is frequently lost or impaired by the cooking that is necessary to insure their preservation. This operation is very simple, and has the immense advantage of doing away with all temptation to employ injurious coloring matters for the purpose, which is notoriously too often practiced. The use of chlorophyl for this purpose is not only rational and harmless, but its effect in restoring the natural color of the vegetable preparations is said to be a perfect reproduction of the original color so much desired. The importance on sanitary grounds of this admirable discovery (originated by MM. Guillemare and Lecourt) has been recognized by a flattering commendation from no less distinguished a body than the Academy of Sciences; and one of the leading English analysts, after an examination of samples prepared by this process, makes the following report: "The peas had a green color and a good flavor. They were entirely free from copper or any thing that would be injurious to those using them as an article of food. We consider the new process of coloring preserved vegetables a very important one, a great improvement on any thing brought out before, and its success as exceedingly satisfactory." It would not be amiss for those engaged in manufacturing canned vegetable food in this country to look into a process which has received such eminent indorsement.

The Experiment of Compressing Flour, for economy of space in packing, is affirmed to have given very satisfactory results, not only in this regard, but also in respect to its preservation in good condition for quite a length of time. By subjecting some flour to a pressure of 300 tons, a French chemist succeeded in reducing its volume to one fourth of its original bulk, and, having sealed up samples of the same flour, pressed and unpressed, in tin boxes, the pressed samples were found to have preserved their good qualities unimpaired at the expiration of a year, while the unpressed samples had turned bad. These facts we give on the authority of the *Am. Jour. of Industry.* The suggestion of compressing this staple article of food appears to us to be deserving of attention, and if the experimental results above stated are substantiated, there is no reason why the plan should not be practically introduced in provisioning ships, armies, expeditions, and the like. We have condensed meats, milk, coffee, etc.; why not condensed flour in place of hard-tack?

To Render Leaden Water-Conduits Harmless, quite a number of suggestions have been made, the latest of which consists in the production on the interior of the pipes of a coating of sulphide of lead, which is accomplished by passing through them, for 10 or 15 minutes, a hot concentrated solution of the sulphide of sodium. The action of this agent is said to produce a glaze of sulphide of lead, which, being very insoluble, protects the lead beneath from any corrosion, and the water passing through the pipes from dangerous contamination.

Glass Millstones.—The *Manufacturer and Builder* of recent date calls the attention of glass-manufacturers and millers to a recent German observation that the finest flour is produced by those millstones which have the most glassy texture, and to the subsequent assertion that pieces of glass, combined in the same way as the French buhr, and similarly grooved on their surfaces, will grind better than the buhr millstones. Millstones of glass are said to be now made in Germany, and to give great satisfaction in use.

Engineering, Mechanics, and Miscellaneous.

The Canal across the American Isthmus.—Mr. Frederick M. Kelley contributes an interesting article to the *Scientific American Supplement* (April 26th), entitled "The Atlantic and Pacific Interoceanic Canal," in which he reviews the history of this long-debated enterprise, and discusses the relative advantages of the numerous routes that have been surveyed and proposed. He disapproves of the Nicaragua route, which has met the approval of our government engineers, because of its length, the necessity of 20 to 24 locks, and the absence of good harbors. Without presenting his comments on and objections to other routes, for which we refer our readers to the source of our information, we may note that he holds the route from the Bay of San Blas to the Pacific, by way of the Bayano (or Chepo) River, and which is the shortest route of any yet discovered—being only about 30 miles from ocean to ocean—to be decidedly the best and most practicable for the location of the great work. This route, he affirms, will require only 7 miles of tunnel (taking issue on this point with Com. Selfridge, who has affirmed that 10 miles of tunnel will be demanded), and in addition to being the shortest route of any proposed, and affording magnificent harbors on both Atlantic and Pacific sides, will give free and direct communication on one level between the oceans, with only a tidal lock to regulate the currents. The river provides nearly ten miles of the canal, which would leave but 7 miles of tunnel and 13 miles of open cutting to be done to complete the work. The tunnel, which is the great and expensive feature of the work at this point, he concludes, from comparison with the progress of similar works (Mt. Cenis, St. Gothard, Sutro, etc.), could be easily accomplished within 7 years; and the whole cost of the work he believes would not greatly exceed $100,000,000. To use his own words: "From what we positively know already, an expenditure of about $108,000,000, and less than 10 years' time, would break down the stupendous barriers of the Cordilleras, and relieve the commerce of the world."

Concerning the Project of an American Inland Sea, to which we briefly referred in our last, the following additional particulars have appeared, which may be of interest: The region selected for the undertaking is an arid and sandy plain, lying between Arizona and Southern California, and the plan of leading into this depression the waters of the Gulf of California is to cut two canals, one ten and the other fifteen miles long, to be connected by a lake (itself some 20 miles long) which exists midway between the head of the Gulf and the basin of the proposed sea. Abundant evidence of a geological nature exists, it is said, to prove that the sea recently filled this same basin. One million dollars, it is estimated, will suffice to execute the work, and its projector, General Fremont, is reported to have visited Washington for the purpose of securing the appointment of a commission of engineers to make the necessary surveys to demonstrate its entire practicability, as a preliminary to presenting the scheme to Congress for an appropriation. If the physical features of the region are as favorable to the execution of this piece of engineering as it is represented, a million dollars would be a small outlay for the climatic and commercial benefits which would follow its completion.

Concerning the Suez Canal.—Our Consul-General at Cairo supplies the following interesting facts gleaned from authentic sources. The total cost of the work was 472,921,799 francs ($92,273,907). The stock of the company consists of 400,000 shares of 500 francs (par) each. These shares have sold as low as 100 francs, and at the opening of the canal they had advanced to only 300 francs. They are now quoted at 717 francs, and are advancing. The English government's purchase of 176,602 shares in 1875 was made at 568 francs per share, and is now yielding a clear profit of 25,000,000 francs yearly. The revenues of the canal have increased from five million francs in 1870, to more than thirty millions in 1877; while the expenses have been slightly over seventeen millions, and are decreasing or stationary. Except the work of keeping the channel and its accessories well cleared (which involves an annual cost of two million francs), there is but little to be done in maintaining the canal; the actual working expenses (exclusive, of course, of interest and sinking fund) do not exceed five million francs yearly. Vessels drawing 25 feet (or less) of water pass through the canal, and two thirds of them carry the British flag. These facts will enable our readers to draw an intelligent conclusion of the commercial and political advantages which the British government has gained by its great purchase.

The Creation of the Interior Sea in Algeria is still actively discussed in France, scarce a meeting of the Academy passing by without some contribution to this subject. At a recent sitting, De Lesseps gave an account of Captain Roudaire's soundings at various points, and of his discovery that potable water in abundance can be had during the progress of the work. At the same sitting MM. Martens and Desor presented several considerations against the advisability of the project, urging, with other objections, that Roudaire's measurements should not be too implicitly relied on, because of the difficulty of obtaining accurate measurements in that land of the mirage; that the extensive date culture to the south of the proposed sea would be destroyed; and that the anticipated improvement of the climate of the surrounding region is an illusion. At the meeting succeeding that at which these views were presented, M. Favé replied to the objections of MM. Martens and Desor, and proceeded to argue, from the facts afforded by the Suez Canal, that their fears were groundless. Our authority for the above is London *Nature.*

The Wooten Dust-Burning Furnace, as we learn on the authority of the Catasauqua *Dispatch,* has been introduced with good results in several of the industrial establishments in that neighborhood. The new apparatus is reported to have been adopted by the Lehigh Fire-Brick Works and by the Crane Iron Company.

Noiseless Ware is a novelty in china-ware introduced by Mr. Vernon, of Scotland, and which is well spoken of by the London *Pottery Gazette.* It consists in providing at the base of the article, or, in the case of covers, under the rim, a groove, into which is riveted a strip of India-rubber. This strip is so formed that when run into the groove it fits tightly, and that part of it which projects beyond it effectually prevents the article from scratching any smooth substance on which it may be placed, insures the greatest quiet when the article is being moved about, and renders it less liable to that slipping from trays that now and then causes much grief at meal-time. At the Royal Hotel, Glasgow, Mr. Vernon has placed on exhibition quite an elaborate selection of wares (dinner and tea services, toilet sets, etc.); and of particular interest is a display of shipping ware placed on a rolling table, the surface of which is partly plate-glass, partly finely-polished wood, and partly cloth. The table is set a-rocking, to imitate the conditions of a cabin table in a storm at sea, but the ware persistently refuses to budge. The value of this simple invention for ship crockery will be apparent.

A Number of Iron Cross-Ties have been laid down by the Philadelphia & Reading RR. Company, near the Phœnixville depot, at a point in the road where the traffic is unusually heavy, with the view to their more general introduction, should they prove to be satisfactory.

The Import Duty on opium prepared for smoking is $6 per pound, and on the crude article, which must be of a certain grade to insure its admission, $1 per pound. Consequence: The establishment of a new industry in the United States—the preparation of opium for smoking. One establishment of this kind, we are informed, is located in Jersey City and two more in San Francisco.

The Incalculable Advantage to Commerce, and especially to the port of New Orleans, of the Eads jetties, is the theme of a late letter of Mr. Smalley, the New York *Tribune's* correspondent.

TERRE HAUTE, IND., April 23.—The coal miners at Brazil, to the number of 1800, struck again this morning for an increase of wages. This is the second strike within the past two weeks, the first strike having been amicably settled and the miners returned to work.

THE CHESAPEAKE & DELAWARE CANAL.—WASHINGTON, April 23.—The House Committee on Railways and Canals to-day appointed a subcommittee, consisting of Messrs. Kimmel, Turner, and Ford, to take into immediate consideration the bill introduced by Representative Henkle, of Maryland, providing for a ship-canal to connect the Chesapeake and Delaware bays.

COLLIERS' STRIKE IN PENNSYLVANIA.—WILKES-BARRE, PA., April 22.—Owing to a dispute in regard to the number of working hours, the drivers and runners at the Henry Colliery struck yesterday, thereby throwing about four hundred miners and laborers out of employment. The strikers were discharged to-day. Their places have been filled and operations resumed.

COLLIERY DISASTERS.—WILKES-BARRE, April 23.—This morning the night shift in No. 10 colliery of the Lehigh & Wilkes-Barre Coal Company, at Sugar Notch, were warned by the ominous breaking and cracking noises that the mine, or a part of it, was about to close in on them. A boy was immediately dispatched to the face of the east gangway, where five men and two boys were at work, to notify them of what was occurring between their gangway and the opening. All the persons in the mine made their escape before the cave-in occurred with the exception of those men and the messenger who was sent to warn them. They are now imprisoned 1200 feet below ground. The vein crops out at the surface, and 200 men are sinking a hole to release the imprisoned men.

VICTORIA, B. C., April 24.—A special dispatch says the total number of deaths by the Wellington coal mine catastrophe is twelve. All the bodies have been recovered excepting one Chinaman. The level in which the explosion took place is now being flooded to put out the fire which is raging in the slope.

THE SOUTHERN PACIFIC RR.—On the 23d inst., the track of the Southern Pacific Railroad was laid to within five miles of Maricopa, Arizona. It is intimated by the local press that this road may not stop at Maricopa, as was first intended, but keep right on. It is stated that although no assurance has yet been given that the work is to be continued, yet there are many things of more or less importance which indicate that continuous construction is in contemplation, if not already determined upon. Although there are now more than enough ties to complete the track to Maricopa, whole train loads of them continue to be sent to the front. A contract has been made with the Pacific Improvement Company for the construction of the road clear to the New Mexican boundary; though this fact in itself affords no conclusive proof. Many more than enough rails are already *en route*, and yet Eastern papers speak of heavy contracts for more having been made with rolling-mills by C. P. Huntington. A large force of surveyors has been in the field all winter, so that by this time the company must have ample data upon which to base a selection of route eastward from Maricopa. Then, too, strong temptation to extend the road is offered by the facility with which the next hundred miles eastward can be constructed, and by the late extraordinary mining developments in Southern and Eastern Arizona.

MONTANA MINING NOTES

Special Correspondence of the Engineering and Mining Journal.

Messrs. Cotter & Hickey deposited 750 ounces gold retort at the U. S. Assay Office, Helena, the last week in March. It was worth $9092.19, and was the result of 23 days' run in March of a five-stamp mill working five to six tons of ore a day. The Hickey lode, of which Cotter & Hickey are proprietors, is a remarkably fine one, and they can always turn to the records of the Assay Office in proof of what their mine has produced. Messrs Cotter & Hickey are industrious and courteous gentlemen, and, although men of limited means, are developing their mine in a sensible manner—without the aid of a company.

Considerable excitement has been created recently in the Stemple District by the discovery of another rich mine. The discoverers are Messrs. Mitchell, Culleny, and Ferritz. It is called the Gloster lode, and is situated about one mile due north from the Whippoorwill and three miles from the Penobscot. About 300 feet from the old shaft, a new one was sunk, and drifts run east and west. In the eastern drift, native gold was found in the ore. The vein was discovered 15 feet from the surface, and is 14 feet wide. Much prospecting is going on in the neighborhood of this discovery, but as yet the facts are not entirely reliable.

The Penobscot produced $14,000 of gold bullion last month. The placing in position of new stamps and arastras caused several stoppages. A new engine, two steam-pumps, four boilers, hoisting apparatus, and other machinery have been ordered from the East, and, when they arrive, will increase the yield of precious metals. One hundred and twenty men are employed by this company.

The shipments of bullion from Butte for the week ending March 24th, 1879, amounted to 1913 pounds, worth $32,521; and for the week ending March 31st, were 1716 pounds, worth $29,129.

Mr. Charles Clark, of St. Louis, has succeeded Mr. David Carson as Superintendent of the Hope Mining Company, at Phillipsburg. A large amount of machinery has been contracted for recently, which is to be employed in the working of about 10,000 tons of tailings, which give an average assay of about $30 per ton.

The amount of gold and silver, in the shape of retort, bars, and dust, handled at the U. S. Assay Office, Helena, during the months of March, 1878 and 1879, is as follows:

	1878.		1879.	
	Oz.	Value.	Oz.	Value.
Gold	551·50	$9,948.89	1,230·74	$17,574.13
Silver	34,555·55	36,566.41	25,677·70	25,396.43
Total		$46,515.30		$42,970.56

During the month of March, 1879, there was purchased at the United States Assay Office, Helena, $7527.55 worth of gold bullion on government account.

Spring has at last reached Montana—a little in advance of previous seasons; and since its advent, mining has received a great stimulus. Prospectors have started out for the summer, the placer mines have been repaired and work commenced, and work on quartz leads, abandoned for the winter, has been resumed. This season promises to be a very active one in mining industries in Montana, and the yield will be an increase over last year. There will be more water for the placer mines than for a year or so past, and mines that have not been worked during this time will be worked this season. The outlook for the summer and fall, in every branch of mining, is very bright and promising throughout the territory.

TUBEROSE.

LODES AND LAWS AT LEADVILLE.

This valley of the Arkansas at the site of Leadville is said to be, and I think must be, beautiful in summer. Even now, not yet denuded entirely of fine spruce and pine timber, cradled in ranges that distance certainly lends enchantment to, and intersected by streams that imagination paves with gold, the situation impresses favorably. Nor is there any thing arctic in its climate; for although near timber-line, some 10,200 feet above the sea, the vale is sheltered from winds by the environing crests, the sun's rays lose little power in penetrating the purely clear atmosphere, and snow, falling even to the depth of a foot or more at night, evaporates and disappears before the close of day. But it is needless to say that the population of Leadville is not here in search of the picturesque, though of the crowds of men that jam the streets fully one half appear to be idlers, who only impede the way, and who are probably in various phases of the condition that the French would call *crévé*, or in our vernacular, "busted." Strongly contrasting, is the eager vehemence of the moving mass, the incessant traffic, the urging trains and ore-teams in the streets, the horsemen pressing to and from the hills—all the peculiar activity of a "booming" mining camp.

Leadville continues to expand with surprising rapidity, houses spring up, or move about, dragged to new locations, so that the scene is enlarged and to some extent shifted day by day. As for the constructions, they vary from buildings of brick and commodious frame houses to log-cabins, slab-shanties, and tents; lumber is scarce, and is transformed to shelter as quickly as it can be procured.

Meanwhile, on the hills from the head-waters of the Arkansas, at Ten-Mile, to the town of Granite, 17 miles below Leadville, and further, the prospectors are down through snow and slide perforating the porphyry with shaft and tunnel, and anon emerging with pockets full of rocks of very dubious look, to thrust in the faces of the "boys," with the eternal adjuration to "look at that now—only ten feet down, and runs ten ounces, sir." Conversation in the hotels and offices furnishes but one text, though multiple variations—struck it, sold it, got a contact, free gold, sand carbonates, hard carbonates, outcrop in place, and so on.

Will Leadville be permanent? is a query that rises often, and naturally embarrasses the uninspired mind. When one reflects on Babylon, which Leadville in some respects resembles—on so many once bustling marts succumbed to time, there is clearly room for doubt; but seriously, from what I have seen in the neighboring hills, and believe of the adjoining district, I judge that the enormous low-grade deposits, backed by the gash and fissure veins of gold and silver, will keep the city on the map till the question shall rest. These deposits of iron oxide, lying often exactly between solid lime below and solid porphyry or trachyte cryolite above, or again often mixed in porphyry, and even in *débris* of lime and porphyry, carrying silver lead, or carbonates, sometimes quite rich, are not easily attached to a theory. In the Iron mine, the vein between lime and jointed porphyry is singularly defined and regular; yet near it, on the northern slope of the same hill, bodies of equally concentrated ore lie in porphyry alone; while up the mountain there are veins of galena and a porphyry contiguous that is filled with sharp-edged fragments of lime. On Fryer Hill, the structure of the porphyry is more gravelly, and no lime has yet been found. As a general rule, the porphyry is either mineralized with perceptible iron pyrites, or at least gives to the assay from one to five ounces of silver. All bodies of ore not continuous, and lying in mixed porphyry, may satisfactorily be attributed to the agglomeration of *débris;* but the regular veins, are they segregations from the porphyry? In the Iron mine, there is often a kaolin gouge between the porphyry and the vein; but again the hard gray carbonates are seen in places in well-defined but very firmest contact with solid porphyry. The lime below is uniformly deeply penetrated by iron. All of the rock, the porphyry, iron, and lime, is highly siliceous, and the lime is fairly magnesian also. I have studied but one prominent geological fault, namely, the break along the outcrop of the Iron mine, the Bull's Eye, Lime mine, etc.; but this shows in several places apparent evidence that the porphyry overlay the lime before the break, because at ten feet or two hundred deep there is seen on the one hand a lime bluff, scoured, polished, striated; on the other an unmistakable jointed porphyry; and between the two a zone of broken comminuted porphyry, with clay schlickensides throughout, that can only be imagined a region of attrition. In this region, the iron oxide shows traces just as in coal-bed faults; the black stains streak along the slip. Can such a zone of attrition be called rock in place or a contact? If so, then the lowest outcrop owner may work up along a fracture, and so into the terraces above him, carrying the whole vein, unless, indeed, restrained by his legal inability to follow on an upward dip. It may, indeed, be asked how that "downward dip" phrase of the act would affect a miner in a true fissure coming to a fault where the prolongation of his vein were overhead, as might often be the case. The act, becoming so famous and on all our tongues, is quite deficient to our cases, and even in general technology it uses the word perpendicular instead of vertical; originates the ambiguous expression "top or apex," instead of outcrop, which universally means the intersection of the body of a lode with the surface of the earth; speaks of a departure from the perpendicular and a downward dip, in such phrase as to authorize following neither a vertical lode nor a horizontal one, and finally throws among us the firebrand "vein or rock in place." Is a vein or bed or lode-rock in place if it lies only on a foot-wall or bed-rock in place? If so, placers are in place. In a porphyritic country, where successive eruptions have occurred of porphyries, trachytes, and basalts, there must be a series of surface zones that have weathered to displacement. Are they in place again when covered anew? Is a zone of attrition on a break when the material is neither in place with the final porphyry situation nor the original—a zone of rock in place? and is vein matter in place therein?

It would seem trivial to pursue such questions, were it not that they may be made pregnant with subtleties for the confusion of juries, and the whole labyrinth ought to be destroyed by some legal Theseus, and all mineral claims conveyed in aliquot portions of land sections and confined inside their vertical planes.

SPECTATOR.

LEADVILLE, April 12, 1879.

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GENERAL MINING NEWS.

COLORADO.

Mr. Carl Wulsten, writing the Denver *Tribune*, from Rosita, under date of April 12th, says: "At a depth of 8 feet, a large ore-body, assaying 4 ounces gold, and 150 to 800 ounces silver, has been discovered. This discovery is one half mile from the Bunker Hill mine. The Bunker Hill ore has assayed as high as 180 ounces in gold and 897 ounces in silver."

A correspondent of the *Tribune* furnishes the following information of what are known as the Alamosa mines, although the camp is 22 miles from Alamosa City: "The Bloom lode carries 59 per cent of galena and 22 ounces of silver per ton, at a depth of 10 feet from the surface. The vein on which this claim is located is traced for six miles, and a number of other prospects are taken all along the vein."

LEADVILLE.

Senator Jones and party have visited Leadville, and now it is said that the Little Pittsburg group is to be incorporated and placed on the Eastern market. Mr. Elkins, of this party, purchased the Shamrock mine. The Vulture mine is said to have 27 feet of high-grade ore in the south drift, and 20 feet in No. 2 shaft.

The Georgetown *Courier* furnishes the following particulars in regard to the Freeland mine, recently sold to California parties: "The mine is located in Trail Run district, about three miles southerly of Idaho Springs, and has for some time had the reputation of being a very valuable property. The apex of the lode runs over the hill, which renders its development easy by means of adits—the manner in which it has been opened by Mr. Dumont. There are three adits upon the lode—the lower one 1080 feet, the second 830 feet, and the upper one 770 feet long. They are situated 200 feet apart, perpendicularly, and but a small amount, comparatively, of stoping has been done. The ore-vein exposed is from six inches to six feet in thickness, and is composed of galena and iron and copper pyrites, which are said to be worth from $30 to $70 per ton. We understand that the purchasers will soon commence to erect a mill suitable for the treatment of the ore, which is indispensable; for ores of this grade leave but a small margin after paying the exorbitant freight rates of this country. There are nearly 5000 tons of ore at the mine ready for treatment, and the quantity exposed in the mine is said to be enormous; and in the hands of the right parties it will unquestionably pay very large dividends."

Silver Cliff appears to be looming up again. Some very rich strikes are reported to have been made this month. The Rambler is reported to have struck, at a depth of 85 feet, a rich body of galena, running 74 ounces, increasing in quantity and quality with depth. The Greenhorn is said to have shown rich free gold ore. The Storm mine on Round Mountain has struck ore which has assayed 2900 ounces of silver. Assays from the Iron Mountain at a depth of five feet give 140 to 158 ounces silver. The Plata Verde is working two shifts of about 20 men. The Racine Boy tunnel is in 80 feet. The Rambler has passed through 15 feet of solid galena, and has not yet found the limits of the body. A half-interest in the Wolf Tone Chief was sold last week to Eastern capitalists.

DAKOTA.

THE BLACK HILLS.

We make the following extracts from a letter written by Mr. D. B. Canoll, Vice-President of the Cheyenne Gold Mining Company, from Deadwood, under date of April 15th, to R. McNaught, Secretary:

"The shaft is now connected with the working tunnel. The shaft is 68 feet deep, 6 feet × 7 feet. The tunnel is 100 feet in length, 6×7 feet. We are now extracting some very rich ore from the drift in the shaft, 40 feet below the adit from whence the shaft was started, or a distance of about 60 feet below the surface. We are now running the mill on ore from the drift in the shaft. Three drills are employed in this drift, and in a few days there will be a chamber stoped out sufficiently large to run four or six drills. On a level with the adit, and 85 feet above the working tunnel referred to, we are driving a drift 6×7 feet in solid quartz—every foot in good, rich ore. This drift is now in 50 feet. To-morrow we shall begin to cross-cut the ledge from both sides, working two shifts each way, and continue the drift we are now working with three eight-hour shifts. At a distance of 50 feet more, we shall again cross-cut each side to the walls, and continue to push these workings (drift and cross-cuts) until the drift is extended 500 to 600 feet. The drift in the shaft will also be extended to the east and west walls. It has already been driven 25 feet toward the eastern wall, and every foot in good, rich quartz. We shall also start another drift in the shaft at the same depth, running with the ledge, and cross-cut it every 50 feet; and continue its workings same as the one above for 500 or 600 feet, with cross-cuts every 50 feet."

From the Deadwood *Pioneer* of the 12th inst. we take the following:

"The Deadwood mine, located between the Father De Smet and Golden Terra mines, is at the present time one of the best paying mines in the Hills.

"At the base of the immense face of ore, which is 300 feet wide by 150 feet high, a large platform is erected about ten feet high, supported by very heavy caps and posts. A number of chutes are arranged by means of which the cars underneath are loaded and run over the tramway to the mill. At the top of the work, blasts are made, which tear down hundreds of tons, that roll down on the platform.

"Sixty feet underneath the base of the upper workings, three parallel drifts are being carried in on the ledge. The main west drift is in 450 feet, the middle drift is in 100 feet, and the east drift in 180 feet.

"In the west side of the cross-cut a chamber excavated discloses an exceedingly rich chimney of ore of over forty feet in diameter. Here a raise will be started to connect with the surface. Future developments will trace this bonanza and determine its course. The company have over 800 feet to breast out before reaching the De Smet line, but it is decidedly the same ore-body that appears at the face of the De Smet ledge, and is conclusive evidence that it is at least 2300 feet long, over 200 feet wide, and 250 feet high, and will give an average sample of $8 per ton. Clean-up of this mine for the month of March was $40,000. Thirty-seven men run mine and mill, and the expenses per month are below $10,000, thus leaving a profit of over $30,000 for that time.

THE HOMESTAKE.

"This mine continues to look well at all points. The compressor and drills, so long expected, have arrived and are now being set in place over the incline shaft. These drills will develop the mine very expeditiously. The freight for the 120-stamp mill is arriving daily, and it is expected that all the machinery will be on the ground within thirty days, and the mill running by the 1st of June. The mortars are now being replaced, and the mill, when complete, will be the largest in the United States.

"The 80-stamp mill is running very smoothly, crushing ore day and night."

THE OLD ABE.

"This company is working its usual force of men. The main vertical shaft is down 115 feet. It is admirably arranged in three compartments—one 5 × 5 in the clear will be used for a pump, the other two 4½ × 5. When 200 feet in depth is attained, a drift will be run south to connect with the old level, where twelve men are stoping ore which the 20-stamp Burns mill is crushing, giving a return of $10 per ton.

THE CALEDONIA.

"The old tunnel in this mine, which is timbered in first-class style, runs into the hill nearly at right angles with the ledge, which is reached at a distance of 300 feet. At this point an immense chamber of ore has been excavated, connection with the surface being here made by a shaft eighty feet deep. The main tunnel is being now driven in along the foot-wall. It is in 575 feet, and at the north end a drift 42 feet from the foot-wall, to cross-cut the vein, shows the face and side in solid ore, and for the 575 feet of this tunnel the top, bottom, and side show a continuous body of ore, the extent of which can be determined only by cross-cuts. One hundred feet below and farther down the hill, another tunnel has been started for the purpose of tapping the vein immediately under the large chamber, where connections will be made by means of a winze 10 × 12, now being sunk. The lower tunnel is now in 475 feet, and yesterday they struck the discovery ledge, a rich vein 10 to 12 feet wide; a platform was built to save the ore, which shows specimens of free gold. The company's 20-stamp mill is crushing forty tons per day, which averages $9.50 per ton. Twenty-seven men are worked in the mine.

"An assessment was lately levied (which is now delinquent) for the purpose of erecting an 80-stamp mill, which will probably be built this summer. The Clara Consolidated, lately listed on the S. F. Stock Board, is parallel with Caledonia. A tunnel, now in 60 feet, is being pushed forward as rapidly as possible.

THE GOLDEN TERRA.

"This mine is probably the best developed property in the Hills. Over 1200 feet of tunnels and cross-cuts demonstrate the enormous amount of over five million dollars' worth of ore estimated in sight. The main south drift has a number of cross-cuts; one, 110 feet in length, is in ore the entire length. A lateral drift runs 400 feet parallel with this main drift, showing the same character of pay quartz. The main lower tunnel, started below the 30-stamp mill, is in 360 feet, and will be run parallel with the upper tunnel, being connected at convenient distances by winzes. Four veins have been cut in running the lower drift, one showing 40 feet of ore, which is considerably impregnated with white iron, same as that in the lower level of the Father De Smet, which assays $17 per ton. At the surface the dirt from the grass-roots down is being milled. A large breast of ore, 200 feet wide, is exposed, which will be quarried down, and, by means of a chute into the tunnel, transported by cars to the mill. One blast yesterday morning (the hole being drilled 12 feet deep and charged with over half a keg of powder) threw down about 1000 tons of ore. No ore has been milled that did not yield from $10 to $12 per ton. The machinery for the 60-stamp mill will probably be here very soon, and it will be complete and running within forty days. The 30-stamp mill is running; also 20 stamps of Elliott's mill at Central. Fifty-three men are worked in the mine. The stock is now quoted at about $9 per share."

MONTANA.

THE STEMPLE DISTRICT.

We are indebted to the Helena *Independent* of the 12th inst. for the following:

"Fourteen thousand dollars is the amount of gold produced last month by the Penobscot mill, which suffered many times from stoppages caused by the placing in position of ten additional stamps and connecting with several new arastras. Ten more stamps will be added on the 15th inst., and ten more have been ordered. Two steam-pumps, four boilers, hoisting apparatus, and other machinery will reach here about the same time. This company now employs 120 men, and the Belmont company 50 men.

"A very rich strike has been made in this district. A prospecting shaft was sunk 200 feet from discovery, and at the depth of 15 feet, 14 feet of quartz was discovered, thought to be fully as rich as the Penobscot.

"A recent run of one hundred and sixty tons of ore from the Hickey mine yielded $9000, nearly $60 per ton."

The Butte *Miner* has the following:

"Ever since its erection, the Grove Gulch mill has run steadily on ore from the Olive Branch lode. The ore mills about 35 oz. silver and $10 gold per ton.

"The Dewey arastra at Vipond is being reconstructed by placing the arastra beds with the battery of a five-stamp mill.

"A contract has been taken for sinking two hundred feet deeper the main shaft of the Alice mine. Three shifts are at work, four men on each, and the shaft, which is timbered with 12×12 in. timbers, is going down at the rate of three feet every twenty-four hours. The shaft is in three compartments, two, each 4×4½ feet in the clear for the cages, the third 4½×6 feet for pumps. A duplex Worthington pump, with 10-inch water-column, will be in position and ready for use before the foot-wall is cut on the 500 level.

"The Burden mill of Divide Creek, for some time past employed upon ore from the Gagnon mine, is to be removed to Butte. The site selected for it is on the hill-side north of town and a few feet below the main shaft of the mine."

NEVADA.

THE EUREKA DISTRICT.

The following is from the *Leader* of April 11th:

"Within a radius of five miles from the town of Eureka, there are at the present time seventy producing mines, yielding in the neighborhood of 700 tons of ore per day. The amount of ore extracted varies from 200 tons apiece, as at the Eureka Consolidated and Richmond, to a few hundred pounds picked out by chloriders in the less famous properties. Some of this ore is very rich, and will assay up into the hundreds, and none extracted will work less than an average of $50 per ton, and it can be safely estimated that the regular daily yield of the district will reach $35,000. Not all of this output goes directly to the furnaces, as, in the case of the smaller mines, it is stored upon the dumps until it accumulates in sufficient quantities to warrant a shipment. In some instances as much as 300 tons have been hoisted out and stored away, waiting for roads and trails to become solid, and this ore will be sent to the smelting works next month. On Prospect Mountain the rock has to be transported by mule trains, a tedious and costly method, and one that forbids the utilizing of any except a very high grade, and it is a notorious fact that thousands of tons of second-class rock have been exposed in the shafts and levels of Prospect Mountain claims that would pay a handsome profit for working, if there were good wagon-roads leading to the apex of the mountain."

The *Mining Report* of the 17th says:

"The general appearance of mining matters is very solid, though it can hardly be called active. The principal event of the last week is the strike in the Phil. Sheridan, which completely upsets the theories existing heretofore in regard to the position and existence of ore-bodies in this formation. And they have a ledge beyond a doubt, theories to the contrary. The Eldorado No. 2 also shows a very handsome body of ore, which assays from $130 to $150 per ton. The Kit Carson is on the point of making a very important development, and the strike in the Banner proves to be richer as work advances. The Williams is again shipping ore, and the Grant is said to be making an excellent showing in the lower levels."

Under date of April 22d, we learn that a fire broke out at Eureka on the evening of the 19th inst., destroying property to the value of $1,000,000.

The *Sentinel* says of the Banner mine: "At the end of the north drift from the 260-foot level, a winze has been sunk forty feet, all the way in ore which is estimated to work about $80 per ton. The ledge at this point is twelve feet wide. The ore-body seems to gather strength to the northward, and is also at the bottom of the winze pitching back perceptibly toward the main shaft. The present ore-body was discovered about two weeks ago. There are already on the dump nearly 100 tons of first-class ore, with a forty-foot breast in sight in the winze. The amount ready for extraction can hardly be estimated, all of the indications pointing to an immense supply to the northward.

"The Golden Fleece mine, of Reno, is reported to be showing very rich ore. It is 1500 feet in length on the ledge and 300 feet on each side. An examination of the property recently made shows that the ledge has been fully explored by

drifting and timbering to the distance of 570 feet, for the greater portion of which the ledge has be en exposed, and wherever encountered it is heavily mineralized."

THE COMSTOCK MINES.

From the summary in the Gold Hill *News* of the 16th inst. we condense the following regarding operations on the Comstock lode: "The reported improvement in the incline of the Ophir is officially denied. The workings there are, however, in very promising vein matter, in which developments are likely to occur at any time, and still may not occur in months, if at all. It is hoped that the widening of the vein on the sixth floor of the stopes above the 2000 level, going toward the California, may be a permanent improvement. At any rate, the situation in the mine is one of great promise as well as of general interest.

"The most of the mines along the lode are rapidly advancing toward important operations. What these are in the Sierra Nevada are well known. Those in Ophir are mentioned above. The flooded mines must wait the completion of the Sutro Tunnel. In the Imperial, Alpha, Exchequer, and Bullion, the situation is not ready to culminate yet, unless the cross-cut, 2150 level, of the latter should find ore. The Yellow Jacket is working hard for something in prospective. Crown Point and Belcher are more promising of immediate results, and are pushing their cross-cuts. Should the levels now opened prove unproductive, the next lower level can scarcely fail of giving more satisfactory results, if indications have not lost their significance. Important operations in the Alta are still in abeyance. In the Silver Hill and Succor, developments are increasing in importance and promise."

NEW MEXICO.

THE CERILLOS MINES.

The Santa Fé *Sentinel* of the 10th inst. says of these mines: "We have received several letters from parties in the East asking us whether the Cerillos mines are a humbug or not, and answer their question that the Cerillos mines are no humbug. Perhaps the ore may not be, strictly speaking, what is called high-grade ore, though assays have been made of 160 ounces of silver to the ton, and every pound of ore found so far will pay well for the working. The average wealth of the ore as yet developed—and no shafts have been sunk more than twenty-five or thirty feet—can be safely said to be about ninety or ninety-five ounces to the ton. These are facts, and can be depended upon. The mines are distant from this city, southwest, between eighteen and twenty miles."

A correspondent to the Kansas City *Times*, writing from Santa Fé, under date of April 13th, concerning these mines, says:

"Carbonate discoveries have been recently made twenty miles below this city, by practical miners.

"Ex-Congressman Elkins and Senator Jones are expected to be here soon and invest capital in the pushing forward of the great work now mapped out. Prior to their expulsion by the Indians in 1680, the Spaniards, in a primitive way, worked the mines I now write of. Practical miners told me that they have prospected sufficiently to know that the mineral belt extends at least six miles north and south, and five miles east and west, and that the true fissures point northeast and southwest. Dozens of new veins have been opened, and one and all show excellent mineral; thus far, not a barren vein has been found. All the veins widen in depth.

"That your readers may form an idea, I give a brief statement of the condition of several of the first-discovered mines: Mina del Tiro, width 15 inches, depth, 160 feet; width at base, 7 feet. Carbonate, assayed at 4 feet, 92:4:10 ounces; 8 feet, 120 ounces, width 11 inches; No. 1, 63 per cent lead; 21 ounces silver; No. 2, 51 per cent lead, 34 ounces silver; No. 14, 135 ounces silver, 1¾ ounces gold; No. 15, 50 per cent lead, 10 ounces silver. The average wealth of the ore is far from being fully developed. Not a shaft has been sunk over twenty feet, but they are going deeper rapidly. Within four miles, plenty of water for all mining purposes is to be found in quantities.

"Already very excellent roads are to be found leading to and from the various shafts. At no great distance southward, very excellent anthracite coal has been discovered, also the best of fire-clay; fuel of all kinds, it is claimed, is remarkably cheap. The Recorder's office is in full blast. There are at least two hundred men located in the different portions of the mining camp that have come to stay. The fare from your city to Otaro, New Mexico, is $58.25; emigrant, limited, $50.65; via Alamosa, Colorado, $70; stage fare from Otaro to Santa Fé, $28; same from Alamosa."

THE MASSACHUSETTS AND NEW MEXICO MINING COMPANY.

We are in receipt of the prospectus of this company, an organization incorporated under the general laws of the State of Connecticut, March 20th, 1879, with a full paid-up capital stock of $2,500,000, divided into 100,000 shares of $25 each. We make the following extracts from the prospectus:

"The property of the company consists of the Legal Tender ledge, which adjoins Silver City, a place of about 2000 inhabitants, and is the original discovery which led to the settlement of the Silver Flat Mining District.

"A considerable amount of work has been done on various portions of the company's property, proving good paying ore deposits. The company has now on the dump about 500 tons of ore, which, when properly assorted, would probably be reduced in quantity one third, and if worked in its own mill would run from $100 to $150 per ton. The quantity of ore now in sight in the various shafts and drifts is estimated at from two thousand to three thousand tons.

"There has been expended already upon this property over $16,000, for opening and timbering shafts, drifts, etc.

"There is not any water in the shafts or drifts, or the tunnel; and, judging from the character of mining developments in the district, there is no prospect of reaching any until a depth of 300 feet from the surface is reached.

"There is an abundance of water for milling purposes within 600 feet of the mine; the use of which has been secured. From the mine to the mill site, the conveyance of the ore will require but little expense.

"The climate is of an even temperature, and work in the mines is never impeded by excessive heat or cold.

"During the last ten months' work, 700 tons of ore were taken from the mine; of which 431,254 pounds, or about 216 tons, were sent to another company's mill about twenty-five miles distant from the mine, and returned 24,229½ ounces of silver, in value about $26,000, being at the average rate of a little more than $124 per ton.

"This ore was transported by ox-teams, for which $9 per ton was paid, in addition to $30 per ton for milling expenses."

UTAH.

BEAVER AND THE SOUTHERN MINES.

We are indebted to the Salt Lake *Tribune* of the 19th inst. for the following notes:

"Whatever changes the extension of the Utah Southern Railroad may make in the future of Beaver as a business town, it is now, and will be, the center of a vast mineral region.

"In the Wahsatch range east of the town, rich ledges are being discovered, and some valuable mines are beginning to be developed in Baldy District. A nice ledge of galena ore has been found fifteen miles east of Beaver, while in North Granite, eleven miles west, is the famous Indian mine, now known as the Union. In this district we have the Phœnix, Nos. 1 and 2, Lion, Mars, Champion, Emma, Bee Hive, Enchantment, Sunnyside, Maid of the Hill, Read, and many others. The nearest smelter is at Frisco, 45 miles from Granite. In the Granite districts there is any quantity of timber for mining and smelting purposes, and a good supply of water within a mile or two of the mines. Beaver, Adamsville, and Greenville are the settlements from which supplies are to be had, and the wagon road is good all the year round. On this belt south are the following districts: Lincoln, North Star, Bradshaw, and San Francisco. Rocky District is west of Granite. In Lincoln District are some rich and valuable mines. They have been worked off and on for several years, and among the most valuable was the Cave mine. This mine now employs over 40 men and ships its ore to Frisco. Frank O'Brien, who has been for years prospecting in that vicinity, lately struck what is destined to become one of the rich mines of that country. A shaft is down on the ledge about 45 feet, and the ore-body is about three feet thick, its full width not yet being determined. Three samples sent to Frisco to be assayed went 1600, 2074, and 3000 ounces in silver, and about $14 in gold. The completion of the railroad to Frisco will be the means of bringing some valuable mining properties to a market, giving our Southern miners cheap freights and the benefits of competition with other districts.

THE FRISCO DISTRICT.

"While the Horn-Silver mine holds out, the inhabitants of Frisco have no fears of a famine, and the mine is a third bigger to day than it was three months ago. Both smelters are running and turning out lots of bullion. Another stack is to start up shortly, and we hope to see before long five stacks at least in full blast.

"The Yellow Jacket mine, situated about one mile and a half north of the Horn-Silver, has developed a three-foot vein of high-grade lead ore. This is a new discovery, and has a very promising outlook.

"A new discovery was made about a week ago in Lincoln District that runs high in gold, and considerable excitement is created.

"A claim called the Carbonate, a new discovery situated about two and one half miles north of Frisco, is looking splendid, and has developed a fine body of carbonates running high in silver. This claim has been bonded.

ALTA.

"The Manitoba shaft is now down 220 feet, and the company has found a stratum of ore similar to the Toledo ore on the foot-wall.

"The City Rock is looking well. The main tunnel, running on the vein, is in 950 feet. The ore extracted now is richer than any yet discovered.

"The water in the lower workings of the Flagstaff prevents much being done at present. The same may be said of the Joab Lawrence and Emma mines.

"The Oregon main shaft is 250 feet deep, showing a six-foot vein of black manganese, iron, and carbonate ore. The prospects of this company are exceedingly flattering.

"The Frederick tunnel still continues to be an object of interest to mining men, as every foot driven is nearing the main ore-belt of the Cottonwoods. The contractors are driving the work day and night, and it is now in 950 feet.

"The new castings for the air compressor are up, and the pumps working in good order at the Toledo. The lowest workings in the mine are looking as favorable as any thing that has been developed in Little Cottonwood District. Constant shipments of rich ore can be looked for in future.

"It is reported that the wages of the miners at Silver Reef are about to be reduced from $4 to $3 per day, and that the miners will resist the reduction."

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus, and the treating of Precious Metals, etc., from *The Official Gazette of the United States Patent Office*, for the week ending March 25th, 1879:

No. of Patent.	*Title of Invention.*	*Name of Inventor.*	*Residence.*
213,520	Method of Tubing Wells	Rasmus Mikkelson	Lodi, Wis.
213,525	Testing-Machine	Tinius Olsen	Philadelphia, Pa.
213,527	Amalgamating Quartz-Mill	Almarin B. Paul	San Francisco, Cal.
213,531	Pump-Valve	Joseph Scherer (a)	Buffalo, N. Y.
213,539	Gas-Engine	Wilhelm Wittig	Hanover, Prussia.
213,540	Ore-Washer	James M. Bailey	Pittsburg, Pa.
213,573	Steam-Engine	H. A. Jamieson	Brooklyn, N. Y.
213,600	Hydrogen-Gas Generator and Carburetor	John F. Williams	Carthage, Ill.
213,615	Compound Steam Pumping-Engine	George F. Blake	Boston, Mass.
213,624	Turbine Water-Wheel	John C. Clime (b)	Philadelphia, Pa.
213,626	Devices for Drilling Wells	Austin M. Comstock	Emlenton, Pa.
213,643	Electric Light	Moses G. Farmer	Newport, R. I.
213,648	Injectors	Alexander Friedmann	Vienna, Austria.
213,663	Rock-Drill	James B. Johnson (c)	Boston, Mass.
213,665	Rotary Water-Meter	Henry J. King	Middletown, N. Y.
213,722	Condensing Fumes from Smelting-Furnaces	William Wiley, Jr	Joplin, Mo.
213,726	Rotary-Engine	Granville G. Wright	Winchester, Conn.
	Re-issues.		
8,631	Force-Pump	Roscoe Blau	Hudson, Mich.
8,634	Scale-Beam	John Weeks	Buffalo, N. Y.

(a) Assignor of half his right to Adam Reid, same place.
(b) " " " George F. Godley, same place.
(c) " to the Johnson Rock Drill Manufacturing Co., same place.

PROPOSALS.

For the benefit of many of our readers, we compile weekly such proposals and solicitations for contracts, etc., as may be of interest. The table indicates the character of proposals wanted, the full name and address of parties soliciting, and the latest date at which they will be received:

Pumping Engine; Chief Engineer Department of Buildings, Brooklyn, N. Y.	April	26,	1879.
Water-Works for the City of Richfield Springs, N. Y.; Wm. B. Ward, President Water Board.	"	28,	"
Dredging; B. F. Morse, City Civil Engineer, Cleveland, O.	"	30,	"
Light-House Work; J. M. M. Clitz, U. S. N., Inspector Third District, Tompkinsville, N. Y.	May	1,	"
Architect's Designs for School-House; William Tindall, Secretary Commissioners, Washington, D. C.	"	"	"
Masonry, Bridge Construction, etc.; J. M. Byers, Chief Engineer, 61 Fourth avenue, Pittsburg, Pa.	"	"	"
Country Roads, Construction of; Charles H. Deiters, Clerk, Wheeling, W. Va.	"	2,	"
Bridges, Construction of Three Wood or Iron; M. M. Thomas, County Auditor, Madison County, O.	"	"	"
Steam Snag-Boats; J. A. Smith, Major of Engineers, Indianapolis, Ind.	"	3,	"
Dredging Three Rivers in Texas; total appropriation, $28,000; C. W. Howell, Capt. of Engineers, New Orleans, La.	"	"	"
Furnishing Stone for Crib Work; G. Weitzel, Major of Engineers, Detroit, Mich.	"	5,	"
Lard, Oil, Castings, Pipes, etc., for Water-Works; William C. McCarthy, Comptroller, Pittsburg	"	"	"
Belgian Block Pavement; Michael Davis, Orange, N. J.	"	"	"
Broken Stone; Michael Davis, Orange, N. J	"	"	"
Improvement of Saginaw River, Mich.; F. Harwood, Major of Engineers, Detroit, Mich.	"	7,	"
Russia Hemp, 50 tons; C. J. Emery, Day Director U. S. N., 45 Milk street, Boston, Mass.	"	8,	"
Heating Apparatus; R. A. Mott, Faribault, Minn.	"	10,	"
Hospital Building; A. A. Lewis, Weston, W. Va.	"	21,	"
Designs for Pumping-Machinery, for which premiums will be paid, as follows: 1st best design, $500; 2d best, $300; 3d best, $200; W. E. Cutshaw, City Engineer, Richmond, Va.	July	1,	"
100,000 tons of Steel Rails to be Manufactured in New Zealand; John Knowles, Under Secretary for Public Works, Wellington, New Zealand. (See advertising columns).	Sept.	30,	"

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending April 19th and years from January 1st:

Tons of 2240 lbs.	1879. Week.	1879. Year.	1878. Week.	1878. Year.
Wyoming Region.				
D. & H. Canal Co..	51,318	778,407	28,153	628,325
D. L. & W. RR. Co.	56,749	916,340	22,018	507,136
Penn. Coal Co.....	27,639	324,422	12,878	150,523
L. V. RR. Co.....	25,605	256,150	12,570	194,982
P. & N. Y. RR. Co..	.....	4,770	533	6,951
C. RR. of N. J.....	35,985	486,913	21,361	238,111
Penn. Canal Co.....	.....	.....	12,990	29,226
	197,296	2,766,902	110,503	1,755,264
Lehigh Region.				
L. V. RR. Co.....	62,030	726,515	44,429	595,717
C. RR. of N. J.....	42,445	560,843	27,019	267,136
S. H. & W. B. RR..	239	8,074	.....	6,088
	104,714	1,295,432	71,448	868,941
Schuylkill Region.				
P. & R. RR. Co	152,959	1,804,753	601	841,481
Shamokin & Lykens Val....	19,496	191,228	9,140	131,994
	172,455	1,995,981	9,741	973,478
Sullivan Region.				
Sul. & Erie RR. Co.	784	15,273	571	9,319
Total	475,249	6,073,588	192,263	3,607,003
Increase.....	282,986	2,466,585	.....	.....
Decrease	.....	.....	.....	.....

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

The increase of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania railroads, amounts to 68,069 tons, as compared with the corresponding period in 1878.

Belvidere Delaware Railroad Report for week ending April 19th:

	Week.	Year. 1879.	Year 1878.
Coal for shipment at Coal Port (Trenton)	.....	.....	170
Coal for shipment at South Amboy	12,627	123,902	147,976
Coal for distribution.....	5,719	95,752	49,814
Coal for Company's use	213	26,759	26,572

Perth Amboy Business:	Tons.
Received for the week	27,839
Shipped for the week....	25,555
On hand April 19th.....	151,647

The Production of Bituminous Coal for the week ending April 19th was as follows:

Tons of 2000 lbs., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2240 lb	36,953	342,321
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	7,005	114,012
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	3,103	41,116
*East Broad Top.....	1,391	19,117
Clearfield Region, Pa.		
*Snow Shoe....	490	6,184
*Tyrone and Clearfield.....	29,346	375,001
Allegheny Region, Pa.		
*Pennsylvania R. R	5,074	50,582
Pittsburg Region, Pa.		
*West Penn R. R.....	4,226	58,249
*Southwest Penn. R. R.....	704	10,297
* Penn & Westmoreland gas coal, Pa. R. R.....	19,263	239,420
*Pennsylvania R. R.....	7,884	118,904

*For the week ending April 14th.

The Production of Coke for the week ending April 14th:

Tons of 2000 lbs.	Week	Year.
West Penn. R. R....	1,155	27,985
Southwest Penn. R. R.....	5,499	247,003
Penn. & Westmoreland Region, Pa. R. R.	1,557	33,187
Pittsburg, Penn. R. R.....	2,820	43,612
Penn. R. R. (Allegheny Region).....	371	14,857
Total...	11,402	356,644

THE COAL TRADE REVIEW.

NEW YORK, Friday Evening, April 25, 1879.

Anthracite.

There has been a very good business in anthracite coal, buyers appearing to appreciate that the prevailing prices are ruinous to producers and can not be continued for a great length of time. There is no inclination on the part of producers to sell for distant delivery at present prices. The Philadelphia & Reading Coal and Iron Co. claims to be sold up to June 1st, and is not soliciting orders. Prices are practically unchanged, being at all events no higher than a week ago.

The rumors of a coal combination continue to be freely circulated; but there are not nearly as good indications of any thing being done as there were two months ago. Although the rumors appear to be believed at times on Wall street, and the prices of the shares advance, yet it is very evident that buyers of coal have not believed them.

The Delaware, Lackawanna & Western RR. Co. has announced 100,000 tons of coal to be sold at auction next Wednesday.

The Philadelphia *Ledger* of April 21st says:

"The acknowledged facts of the trade are anomalous and entirely inexplicable in any logical way. The demand for coal is quite active, and sales are pretty generally a good way ahead of delivery. Ordinarily this condition of affairs would stiffen and advance the prices of coal in the open market, but the actual fact shows up to the present generally lower prices. This indicates some countervailing influence not natural to the trade itself. Higher prices than are now realized for fuel could be had for the asking if the market presents its true condition. Whenever buyers are weeks in advance in purchasing their supply of coal, then has come the period precedent in the market for an advance of prices. And higher prices would now be uncomplainingly paid. A good many persons in the trade are of opinion that the influences that now tend to steadily sink prices on an active demand for coal are traceable to speculations in the stocks of several of the coal-carrying companies, and the officers and managing men of two or three of the New York companies are being charged with going 'long' or selling 'short' their own stocks. This, if true, is criminal, though the penalty is not specified in the code. It is easy to make charges; but it is difficult, except by some such presumption as intimated, to account for the anomalous fact of declining prices attending on an active demand in the market. There is probably a competition among the carrying companies to keep up a full tonnage as against their rivals that would induce low transportation charges, and so keep down the price of coal; but it is not supposed that the losing prices on coal could or would be so long continued for such an object as they have been."

The Pennsylvania Coal Company has issued the following circular:

NEW YORK, April 19, 1879.

"Present prices for fresh-mined Pittston coal, for immediate delivery at company's coal dock, Newburg; subject to the usual conditions of sale and shipment.

"The company reserves the right to advance upon these prices at any time, except upon orders entered prior to such advance, and orders sent in will not bind the company until accepted.

	Delivered as above.
Lump, per ton of 2240 lbs.....	$2.15
Steamer, " "	2.15
Grate, " "	2.15
Egg, " "	2.20
Stove, " "	2.40
Chestnut, " "	2.40
Small Chestnut, "	1.90

"Fifty cents per ton additional for delivery at New York.

"The above prices are for cash."

When a contractor's or dealer's commission is taken from the above prices, very unsatisfactory returns are left for the company.

The production of anthracite coal last week was 282,986 tons, as compared with 466,046 the previous week, and 192,263 tons the corresponding period of 1878. The total output from January 1st to April 19th was 6,073,588 tons, as against 3,607,003 for the like period of last year, showing an increase this year of 2,466,585 tons.

Our Philadelphia correspondent says of the anthracite trade in that city:

"The demand for coal from all quarters is very active, but prices are not satisfactory. All the companies are making exertions to produce all they can, and it is evident that at present prices the demand will overlap the supply at some period this year. How soon, will depend on the feeling among buyers and their being properly informed. The Reading Coal and Iron Company is sold out to June, and has stopped taking orders at present prices. If vessels should become plenty here, the amount of coal sent to New York from the Schuylkill region will be small. Nothing but the scarcity of vessels prevents active shipments at tide. Freights are naturally stiff with such scarcity, and $1.55@$1.60 offered for Boston. Rates to Southern points are also higher, viz., 85@90c. to Washington."

Bituminous.

The trade in this article is very quiet, and with this exception there is not a feature to the market worthy of notice.

Pittsburg. April 24, 1879.

COAL.—The Ohio has been in fine navigable order during the last eight days, and about 10,000,000 bushels of coal have been shipped to the lower markets within that time. This has withdrawn a large share of the empty floatage from this region, and so many of the towing steamers, that scarce one remains at the extensive mooring shore usually occupied by tugs. These shipments, together with the additional coal that will soon be mined and ready for transportation, will enable the operators here to fill all their existing contracts, after which, as the trade now stands, mining will be but languidly carried on. There is in reality no margin of profit in the business. Miners, by combination, have laid hold of the lion's share—they are paid 3 cents a bushel for their work. Coal on board here sells for 4 cents wholesale; of this the miner receives three fourths, and the operator but one fourth, for his investment in lands, boats, and cost of mining, and his risks, labor, and time. Such a business is surely not worth prosecuting. Nor do the lower markets improve its aspect. Six cents a bushel on board at Cincinnati and Louisville, after the expenses of 500 miles transportation, still leave the miner the unreasonable share of one half, without any of the risks or expense charges. And these selling prices can not be raised—they are immovably clinched and fastened down by the abounding coals, two or three hundred miles below, where mining costs but two cents a bushel. In this condition of things the miners have made a fatal mistake in exacting an unreasonable and unfair compensation for their work. The effect will probably be, to arrest the coal production to the extent of all but that required for home use, and for gas manufacture. At least three fourths of them will in this way be thrown out of work, and compelled to emigrate, or pursue some other calling. Their strikes were blind wars against their own interests; when too late they will find they have killed the fabled goose. At least, such is the present aspect of the case. For fixed reasons before given, quotations are unchanged:

PRICES AT PITTSBURG.

Wholesale, on board..... 4 cts. per bushel, $1.06 per ton
Retail, delivered ..... 5½ " " 1.46 "

AT CINCINNATI.

Wholesale, on board..... 6 cts. per bushel, $1.59 per ton
Retail, delivered..... 7½ " " 1.99 "

AT LOUISVILLE.

Wholesale, on board..... 6 cts. per bushel, $1.59 per ton
Retail, delivered..... 7½ " " 1.99 "

AT NEW ORLEANS.

Wholesale, on board.....25 cts. per barrel, $2.42 per ton
Retail, delivered.....40 " " 3.87 "

Bushels are rated among dealers here at 76 lbs.—26½ bushels make a ton, nearly.

The barrel that rules the coal measurement in New Orleans contains 2 4-7 bushels of 80 lbs. each, making about 200 lbs. Nine and two thirds of these barrels weigh a ton, within a small fraction.

COKE.—The striking miners employed in this industry, having wisely given up their demand for higher pay and returned to work, the 3600 ovens are all aglow again, and will soon be producing their 1,200,000 bushels (24,000 tons) a week, for which the steady and wide-spread demand still exists. From the rate at which coke is sold it is easy to perceive that the operators can not afford to increase miners' wages or any other expenses in the manufacture without raising the price. To this consumers will not consent, having adjusted their business to low rates which can not be disturbed without serious consequences. Quotations remain steady—$1.15@$1.30 per ton of 2000 lbs. on board cars at ovens.—*American Manufacturer.*

San Francisco.

COAL.—Imports from January 1st to April 1st: Anthracite, 1973 tons; Coos Bay, 8523 tons; Vancouver Island, 37,309 tons; Seattle, 34,129 tons; Carmel Bay, 200 tons; Cumberland, 626 tons; Carbondale, 746 tons.

Last week we reported the probable sale of the Othello's cargo of Sydney Steam, 2240 tons. It was purchased by a dealer at $6.50, thus making a difference to the owner of $3500 loss over the first sale thereof to arrive under the supposition that it was Wallsend, and not what it proved to be upon arrival. The price of all kinds of coal seems now to have touched the bed-rock, and yet there is no disposition shown on the part of large consumers to stock up or purchase to arrive in quantities. We doubt if any coast mines are coining money at current low rates. The Wellington folks have no doubt the best show for profit by reason of the superior quality of their product, and which seems to be steadily growing in public favor for household use. From the tables annexed it will be seen that our total receipts for the quarter exceed those of the corresponding period of last year 1654 tons. The tables will be found instructive in showing the loss and gain from different localities. The receipts for the week include the following cargoes: El Dorado, 1800 tons Seattle; Victoria, 1065 tons Nanaimo. The market for anthracite is greatly depressed, stock large, and the demand is very trifling at or about $10. Coos Bay is now selling ex ship at $5.75, and all other kinds proportionably low. We know of no cargo sales of English, Scotch, or Australian to record for forward delivery, while spot prices are more or less nominal. California Mt. Diablo Steam sells at $4@4.50 for fine screenings, and $4.75@$5.25 for coarse. The price of Seattle, Wellington, etc., has been reduced to conform to the general market.

The following gives the comparative imports for the first quarters of—

Foreign:	1878. Tons.	1879. Tons.	Increase. Tons.	Dec'se. Tons.
Australian.....	9,912	.....	.....	9,912
English....	13,836	. ....	.....	13,836
Vancouver.....	34,684	37,309	2,625	.....
Eastern:				
Anthracite	3,029	1,973	.....	1,056
Cumberland.....	349	626	277	.....
Domestic:				
Mount Diablo.....	23,040	27,156	4,116	.....
Coos Bay.....	5,995	9,073	3,078	.....
Bellingham Bay.....	1,975	. ....	.....	1,975
Seattle.....	16,211	34,129	17,918	.....
Rocky Mountain.....	40	.....	.....	40
Ione, California.. ..	350	.....	.....	350
Carbondale, Cal.....	982	746	.....	236
Carmel Bay.....	.....	200	200	.....
Tacoma.....	.....	845	845	.....
Totals..... 110,403		112,057	29,059	27,405
Increase in 1879.....	.....	1,654		

Our monthly receipts from Mount Diablo mines are as follows:

Month. 1875.	1876.	1877.	1878.	1879.
January....14,181	8,653	5,303	7,974	9,571
February...14,344	9,047	5,646	6,458	8,185
March 12,355	8,876	6,114	8,608	9,400
Totals..40,880	26,576	17,063	23,040	27,156

—*San Francisco Commercial Herald.*

New York.

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Per ton of 2240 lbs.	At the Shipping Ports.	Alongside at New York.
Westmoreland and Penn.....	$4.25	.....
At Greenwich, Philadelphia		$5.50
At S. Amboy.	5.00	5 50
Kanawha at Richmond	4.10	5.40
Youghiogheny, Waverly Co., at Balt ...	4.00	5.65
Murphy Run, West Va., at Baltimore. ..	3.75	5.85
Fairmount, West Va., " " ...	3 75	5.70
Newburg Orrel, Md. " " ...	3.75	6.00
Cannelton & Peytona Cannel, West Va.		10.00
" Splint " at Richmond.	6.00	7.00
" Gas Coal at Richmond	4.00	5.65
MANUFACTURING AND STEAM COALS.		
Cumberland at G'n & Alexandria.	2.75@2.90	4.35@4.50
Cumberland, at Baltimore.	2.90@3.00	4.35@4.50
Cl'ril'd "Eureka" and "Franklin."		
At mines.....	0.75	....
At Baltimore & Phila....	3.25	4.50

FOREIGN GAS COALS.	Sterling.	Am. cur'ncy
Newcastle, at Newcastle-on Tyne	7s.6d.	$2 50@ $3.50
Liv. House Orrel, at Liv.	25s.	13.00
Ince Hall Cannel "	35s.6d.	18.00
" Gas Cannel "	25s.6d.	10 00@ 10.50
Scotch Gas Cannel, at Glasgow, nominal	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1.60	....
Caledonia, at Pt. Caledonia.	1.50	$4.25
Glace Bay at Glace Bay	1.50	4.00
Lingan, at Lingan Bay	1.50	....
Intern'l Mines, at Sydney	1.60	....
Pictou, Vale Mines, at Pictou	2.00	4.70

Wholesale Prices of Anthracite Coal Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
§Lackawana, at Weehawken	2 15	2 15	2 25	2 30	2 60	2 40
*Pittston, at Newburg	2 15	2 15	2 15	2 20	2 40	2 40
L. Val. Coal Co., at Amboy	....	....	....	....	....	....
Honey Brook Lehigh	3 00	....	2 60	2 60	2 60	2 40
Wilkes-Barre at Pt. Johnson	2 15	2 15	2 25	2 30	2 60	2 40
Plymouth R. A. at P. John.	....	....	2 25	2 40	2 85	2 50
LEHIGH COAL.						
†Spring Mt. at P. Amboy	3 25	....	2 85	2 85	2 85	2 75
Old Company L., at Eliz'p't	3 30	....	2 75	2 75	2 75	2 60
Cross Creek, at Port John.	3 00	2 75	2 75	2 75	2 75	2 65
†Buck M. at Eliz. Pt. or S. A.	3 00	2 75	2 75	2 75	2 85	2 75
Fulton	3 30	....	2 75	2 75	2 75	2 60
SCHUYLKILL COAL.						
‡*Alongside at N.Y. Harbor.*						
Hard White Ash	....	....	....	....	....	....
Free-Burning W. A	....	....	....	....	....	....
Schuylkill Red Ash	....	....	....	....	....	....
Lorberry	....	....	....	....	....	....
Lykens Valley Vein	....	....	....	....	....	....

* Fifty cents per ton additional for delivery in New York, and fifteen cents per ton additional for delivery at Weehawken.

† These prices are given by Whitney, McCreary & Kemmerer.

‡ On coal delivered f. o. b., at shipping wharf at Williamsburg, the current rate of harbor freight will be allowed from above prices.

§ F. o. b. at Weehawken, N. J.

THE IRON MARKET REVIEW.

NEW YORK, Friday Evening, April 25, 1879.

American Pig.—There has been no important business reported during the week. Prices are steady. Prime No. 1 Foundry iron is not in abundance. Forge is well sold ahead. Although we have heard of additional furnaces having gone into blast, and others preparing to do so, yet it must be remembered that a very large proportion of our production is Bessemer iron, and the indications are that ordinary iron at the present rate of production and demand will be in short supply before the summer is over. Bessemer pig is scarce, and well sold ahead. There are rumors that considerable quantities will have to be imported. We quote No. 1 Foundry, at $18.50@$19; No. 2 Foundry, $17; Forge, $16.

Scotch Pig.—Prices are a shade firmer. The business is only in retail lots. We quote Eglinton at $19@$19.50; Gartsherrie, $21@$21.50; Coltness, $22@$22.50.

Messrs. John E. Swan & Brothers, of Glasgow, under date of April 10th, report 88 furnaces in blast, as compared with 89 a year ago. The shipments for the week ending April 5th were 12,653 tons against 7448 tons for the corresponding week of last year. The total shipments to April 5th show an increase of 25,586 tons as compared with those to the same date in 1878. The imports of Middlebrough pig for the week ending April 5th show an increase of 1461 tons over the corresponding week of last year, while the total imports from December 25th to April 5th show a falling off of 8936. The quantity of iron in Connal & Co.'s stores on the 10th inst. was 240,914 tons, having increased during the week ending that day 3737 tons. No. 1 Scotch pig-iron was quoted as follows: Gartsherrie, 47s.; Coltness, 50s. 9d.; Langloan, 49s.; Summerlee, 45s. 3d.; Carnbroe, 44s.; Glengarnock, 45s. 6d.; Eglinton, 42s. Middlesbrough pig-iron, f. o. b., Tees, was quoted as follows: No. 1, Foundry, 38s. 6d.; No. 2, 37s.; No. 3, 35s. 9d; No. 4, 35s.; No. 4 Forge, 34s. 6d.

Rails.—Sales of 5000 tons of iron rails, at $35@$36 here. There is a good inquiry for steel rails, although we learn of no business. We quote at $33@$34 at mills.

Old Rails.—We are reported a sale of 800 tons, and quote at $20@$21.

Wrought Scrap.—A sale of 300 tons to arrive, at $24, is reported. There is a large quantity on the way, most of which was sold before shipment. We quote at $24@$25. The indications are, that there will be more iron imported this year than for four or five years past.

The following are reported, under date of 23d inst., as prices for pig-iron at Cincinnati, viz.:

Charcoal-smelted (Hanging Rock), No. 1 Foundry, $21@$22; Mill, $18@$19.
(Tennessee) No. 1 Foundry, $20; Mill, $18.
Stove coal, smelted (Ohio), No. 1 Foundry, $16½@$17½; Mill, $16.
Coke-smelted (Ohio and W. Va.), No. 1 Foundry, $19@$19½; Mill, $17.
Car-wheel iron, $28@$31.
All above are four months; the following are cash:
Blooms (charcoal), 45@50.
Scrap iron, cast, 40@45.
" " wrought, 62½@1.00.

The following is from St. Louis, under the same date:

"There is nothing new to note in the pig-iron market. Owing to low freight rates, shipments in considerable quantities are made to Western points. Old rails and old car-wheels are in good supply. Prices remain as last quoted."

Messrs. King, Gilbert & Warner, of Columbus, O., write, under date of April 22d:

"The pig-iron market remains in about the same condition as reported last week. Sales made are mostly for immediate delivery. We do not look for lower prices, unless some of the idle furnaces blow in, as the demand now seems to be sufficient to consume the present production. Prices remain as last quoted."

At Baltimore the demand for pig-iron continues fair, and prices unchanged.

Our Richmond (Va.) correspondence, dated 21st inst., is as follows:

"The past month sales to our mills and foundries have been effected to the extent of about 1500 tons pig-iron, on the basis of $18.50@$19.50 for 1X, $17.50@$18.50 for 2X, and $15@$16 for Gray Forge. About 600 tons old rails have been sold for consumption here and for shipment. Price, f. o. b., from $18.50@$19. These figures can not now be duplicated. Wrought scrap is scarce and commands readily from $17.50@$19 for No. 1.

"A company has recently been chartered in Augusta County, Va., for the purchase of iron-ore lands and the manufacture of pig-iron. The organizers are mostly Pennsylvanians. They are reported as having bought the Ferrol furnace in Virginia and the Quinnimont furnace in West Virginia.

Philadelphia. April 24, 1879.

[Specially reported by JUSTICE COX, JR., & CO., Iron Merchants, 333 Walnut street, Philadelphia.]

Pig-Iron.—The market can be reported firm, with no large transactions, but continued small sales at full quoted prices. We quote: No. 1, $18 50 to $20; No. 2, $16.50 to $18; Gray Forge, $16 to $17, all Philadelphia.

Manufactured Iron.—The demand for bars continues good, with firmer prices ruling. The plate mills report having all the business they can do; but prices do not stiffen. We quote: Bars, 1 8-10 to 2c.; plate and tank, 2 1-10 to 6c. per lb.; a sale of 1000 tons ship-plates is reported at 2 15-100c. per lb., delivered, Philadelphia.

Rails.—There is nothing new to report in steel rails, the mills having about all they can do. We quote $43 to $45 at the mills. The demand for iron rails is more active than for some years. We quote $32 to $36 at the mills.

Old Rails.—There is nothing new to report. Spot rails continue exceedingly scarce, and good prices are offered. We quote $22.50 for spot rails and $21.50 to $22, future delivery.

Muck Bars.—The demand for muck bars is good, and fair prices are ruling. We report sales of 1000 tons at $32, Philadelphia; and quote $31 to $32.50.

Scrap.—Wrought scrap is scarcer, and advanced prices are quoted; but few sales being made, as buyers and holders can not come together as to prices. We quote $21 to $24, Philadelphia; cast is quoted at $12 to $16, dull.

FREIGHTS.

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lbs. to and from foreign and domestic ports, for four weeks ending April 23d, 1879, are given below.

DATE.	From	To	Cargo.	R'te
Mch. 28	Philadelphia	Portland, Or'g'n	RR. iron	8.50
" 28	Perth Amboy	Port Royal	RR. iron	1.85
" 28	Perth Amboy	Boston	Pig-iron	1.40
" 28	Philadelphia	St. Thomas	Coal	2.75
" 28	Baltimore	Martinique	Coal	2.90
" 28	Baltimore	St. Thomas	Coal	2.75
" 28	Wood's Hole	Petersburg	Guano.	1.75
Apr. 1	South Amboy	Havana	Coal	1.00
" 1	Baltimore	St. Jago	Coal	1.50
" 1	Ashley River	Orient	*	2.75
" 1	Charleston	Baltimore	*	1.75
" 1	Portland	New York	‡	‖
" 4	Philadelphia	Havana	Coal	1.30
" 5	Baltimore	St. Thomas	Coal	2.75
" 8	Hoboken	Richmond	Rails	95
" 11	New York	Baltimore	Sulphur	90
" 11	New York	Philadelphia	†	1.05
" 11	Elizabethport	Richmond	Pig-iron	90
" 11	Norwalk	Richmond	‡	1.25
" 11	South Amboy	Havana	Coal	1.00
" 15	South Amboy	Salem	Pig-iron	1.45
" 15	South Amboy	Bangor	Pig-iron	1.60
" 15	Manhattanville	Richmond	Pig-iron	80
" 18	Cow Bay	St. Jago	Coal	3.50
" 18	New York	Richmond	Guano.	1.00
" 18	New York	Morgan City	§	4.00
" 18	Charleston	Philadelphia	Old iron	2.75
" 19	Philadelphia	St. Thomas	Coal	2.50
" 22	Boston	San Francisco.	Iron	¶
" 22	South Amboy	Havana	Coal	1.00
" 22	Baltimore	San Francisco.	Coal	7.00
" 22	New York	Aspinwall	Coal	3.60
" 22	New York	Calcasieu Pass.	RR. iron	4.00
" 22	Hoboken	So'th Newm'k't	Pig-iron	2.00

* Phosphate rock. † Peruvian guano. ‡ Old rails. § Machinery. ‖ $1 f. o. b. ¶ $8@$10.

Coastwise Freights.

Per ton of 2240 lbs.

Representing the latest actual charters to April 25th, 1879.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Alexandria	80@85	....	....
Baltimore	50@60†	....	....
Bangor	....	....	....
Bath, Me	....	....	....
Beverly	1.50	....	....
Boston, Mass	1.40§@1 60	....	1.25
Bridgeport, Conn.	80@85	....	....
Bristol, R. I	....	....	....
Brooklyn	....	....	....
Cambridge, Mass.	1.50@1.50§	....	....
Cambridgeport	....	....	....
Charleston	1.25@1.30	....	....
Charlestown	1.53§@1.50	....	....
Chelsea	....	....	....
Danversport	1.55@1.65†	....	....
Derby	....	....	....
East Cambridge	1.50§	....	....
Easton, Md	....	....	....
Fall River	1.20	....	85
Flushing, N. Y	85	....	....
Fortress Monroe	....	....	....
Fredericksburg	....	....	....
Galveston	....	....	....
Georgetown	80@85	....	....
Gloucester	....	....	....
Hackensack	....	....	....
Hampton, Va	....	....	....
Hartford	....	....	....
Jersey City	....	....	....
Key West, Fla	....	....	....
Lynn	1.55@1.60	....	....
Nantucket	1.55@1.65	....	....
Newbern, N. C	....	....	....
New Bedford	1.20@1.25	....	90
New Brunswick	....	....	....
New Castle, Del.	....	....	....
Newburyport	....	....	....
New Haven	95†	....	....
New London	....	....	....
Newport	1.25	....	....
New York	85	....	....
Newark	....	....	....
Norfolk, Va	65	....	75
Norwich	1.25‡	....	....
Norwalk, Conn	....	....	....
Pawtucket	1.25‡	....	....
Peekskill	....	....	....
Petersburg	....	....	1.10
Pine Island	....	....	....
Portland	....	....	1.15
Portsmouth, Va.	65	....	....
Portsmouth, N.H.	....	....	....
Providence	1.30	....	80
Quincy Point	1.55	....	....
Richmond, Va	73@75	....	85
Rockland	....	....	1.65
Saco	....	....	....
Sag Harbor	....	....	....
Salem, Mass	1.55	....	....
Savannah	....	....	....
Somerset	....	....	....
St. John, N. B.	....	....	1.00
Washington	80@87	....	....
W'lmington, Del.	1.35	....	....

* And discharging and towing. † And discharging. ‡ And towing. § 3 cents per bridge extra. ‖ Alongside.

METALS.

NEW YORK, Friday Evening, April 25, 1879.

The week under review has been one of the most quiet this year. There is, upon the whole, a very good business doing in a small way, but there are no large transactions to give life to the market.

Copper.—There is but very little doing in this market, which is still under the support of the mining companies, who will some day have to suffer for defying the laws of trade. The price here is 16c. On the 22d inst. the Wallaroo sale took place in London. The Burra Burra sold at an average of £62, and the Wallaroo at £62 10s. It was announced that 1070 tons of Wallaroo would be sold, but only 600 tons were offered, the balance being withdrawn, probably owing to the very unsatistactory price received.

From London, under date of April 10th, we have received the following:

"Owing to the Easter holidays, the Chili charters are advised a little earlier than usual. Telegrams received this morning announced 550 tons for England and 50 tons for France, all bars.

	1879. Tons.	1878. Tons.	1877. Tons.	1876. Tons.
Charters:				
Jan. 1st to March 31st	17,794	12,463	11,437	10,486
April 1st to April 9th	900	833	1,827	1,679
Shipments:				
Jan. 1st to March 31st	12,215	11,909	12,699	13,488
March only	4,300	4,153	4,634	5,716

Price of bars yesterday at Valparaiso was $16; exchange, 34d.; which, with steamer freight (60s.), is equal to £56 laid down in Liverpool, without commission to merchants either side. The quantity advised being but small, whereas some people had expected a rather heavy charter, has caused a firmer feeling to become apparent, and there was rather more inquiry for Chili bars, resulting in sales of 25 tons ordinary brand at £57¼; 25 tons favorite mark at £57¾, and 50 tons best at £58½, all on usual cash terms. These are now the ruling quotations, but only small parcels are obtainable thereat. Wallaroo stands £64½@£65; Burra, £63½@£64."

Tin.—We only hear of a sale of 25 tons of Straits, at less than 14⅝c. The closing price is 14¾c. L. & F. and Refined are both scarce and firm at 15c. The Cyphrenas has arrived with 2307 piculs of tin. London quotes Straits to-day at £68 10s., and Singapore at $21.70.

London advices of the 10th inst. say of tin :

"Not much doing, and only a few sales of cash stuff reported, at 69s. cash."

Tin Plates.—There is a good jobbing business, especially in roofing plates. We quote, per box, as follows : Charcoal, bright, ⅛ X, Melyn grade, at $6.37½ ; Allaway grade, $6.12½ ; charcoal ternes, Allaway grade, $5.75 ; coke, bright, B. V. grade, $5.25, and coke roofing, 14 × 20, $5.12½.

Messrs. Robert Crooks & Co., of Liverpool, under date of April 10th, say of tin and terne plates :

"A further weakening in values has to be noted, and buyers, anticipating an increase of this, continue to keep back. Most of the makers of better-known brands, however, hold firmly, and announce their intention to further restrict production, should their prices not be obtainable. If they can carry this resolution at makers' meeting, of which there seems to be some doubt, the downward course of the market will be arrested. If they don't, we quite expect lower prices all round. Meantime, as before reported, coke tins are the weakest, and best charcoal tins the strongest held, ternes of all sorts occupying a medium position."

Lead.—The business has been confined to 30 tons, at 2½c., and about 50 tons at 2.95c. The closing price is 2.95c.@3c. The Eureka company is selling at 3c.

Spelter and Zinc.—Spelter is dull at 4½@4¾c. Sheet zinc is quiet, at 6¼c.

Antimony.—With but very little business, we quote Hallett's at 11⅝@11½c., and Cookson's at 12c.

Quicksilver.—We have nothing of encouragement to remark, and since the departure of the China steamer the demand has been slack, and prices both low and nominal. The City of Sydney, for the Colonies, carried 110 flasks. Price, 37@37½c. Our statistics for the quarter will be read with interest. Thomas Bell will forward, per British bark Guiding Star, for Callao, 400 flasks, valued at $11,322.

The quicksilver exports by sea from April 14th are as follows:

To New Zealand, per City of Sydney, April 14th :

	Flasks.	Value.
Hellmann Bros. & Co.	10	$287
To Australia, per City of Sydney, April 14th :		
Thomas Bell	100	3,060
Totals	110	$3,347
Previously since January 1st	13,129	402,296
Totals since Jan. 1st, 1879	13,239	$405,643
Totals same period 1878	6,261	211,671
Increase in 1879	6,978	$193,972

Receipts for the week, 807 flasks.

Our exports by sea for

	1878.		1879.	
To	Flasks.	Value.	Flasks.	Value.
Mexico	2,007	$67,805	3,179	$94,925
New Zealand	20	658	26	780
China	2,114	71,993	6,470	207,213
Japan	275	9,430	475	14,243
Central America	15	502	50	1,434
Australia	160	5,482	200	6,073
British Columbia	5	167	3	93
South America	870	28,890	....	....
Java	....	....	1	31
Totals	5,466	$184,927	10,404	$324,792

Shipments overland :

	1878. Pounds.	1879. Pounds.
January	68,550	20,210
February	58,775	2,790
March	9,030	4,630
Totals	136,355	27,630

—*San Francisco Commercial Herald.*

THE BULLION MARKET.

NEW YORK, Friday Evening, April 25, 1879.

For the first time in several weeks, the London market has not only held its own without any falling off in price, but has steadily advanced ; by slow stages, it is true, but not the less surely. This gives an appearance of strength to the market calculated to inspire confidence in higher prices. The "scare" would appear to be off the market, with chances in favor of influences likely to improve the price ; and, in this connection, England's policy will be watched with much interest.

DAILY RANGE OF SILVER IN LONDON AND NEW YORK, PER OZ.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
April 19	49¾	108¾	April 23	49 13-16	108½
April 21	49¾	108⅝	April 24	49 15-16	108¾
April 22	49¾	108⅝	April 25	50	109

The Gold Output of the Black Hills for March.—The *Pioneer* says : "From a twenty-five days' run of the Homestake, Giant, and Old Abe, Highland, Deadwood, and Golden Terra, the bullion yield aggregated nearly $150,000. Add to this the Father De Smet, Caledonia, and Central City mines (not taking into account our placer workings or any of the outside districts), the gold yield for the month of March was over $250,000. This, too, from mines that are simply being prospected by driving tunnels and making connections for future work, when three and four times the number of men will be worked."

BULLION SHIPMENTS.

We give below a statement showing the latest bullion shipments in addition to those announced in our issue of April 19th :

April 8th	Eureka	Nev.	.....	$14,940.45
" 8th	Grand Prize	"	.....	7,641.75
" 8th	Highbridge	"	.....	4,409.52
" 12th	Martin White	"	.....	13,074.86
" 12th	Richmond	"	.....	17,116.42
" 13th	Hillside	"	.....	4,820.00
" 14th	Independence	"	.....	6,437.14
" 14th	Pioche	"	.....	34,500 00
" 16th	Paradise Valley	"	.....	9,383.89
" 16th	Con. Virginia	"	.....	47,618.43
" 16th	California	"	.....	44,939.23
" —	Star	"	.....	3,000.00
" 14th	Bechtel	Cal.	.....	18,000.00
" —	Silver King	Ariz.	.....	11,500.00
" 14th	Stewart	Utah	.....	16,000.00
" 16th	Barbee & Walker	"	.....	1,962.50
" 16th	Pioneer	"	.....	1,630.78
" 16th	Leeds	"	.....	4,225.37
" 17th	Stormont	"	.....	14,516.14
" 17th	Ely Mill	"	.....	1,200.00

Messrs. Warwick & Co., of Salt Lake City, received 261,764 lbs. of ore from the Horn Silver, from the 10th to the 15th inclusive.

The clean up at the Stewart mill, Utah, for the month of March was $16,000.

The Carson Mint.—The coinage of standard dollars at the Carson Mint was commenced on the 17th of April, 1878. The total amount coined to April 1st, 1879, was $2,769,000.

Government Silver Purchases.—WASHINGTON, April 23.—The Secretary of the Treasury to-day purchased 200,000 ounces of silver, to be delivered at San Francisco. No offers for delivery at other points were received.

Hereafter 50,000 ounces of silver per week will be purchased for the New Orleans mint.

With reference to this, we learn that in order to supply the Mint at New Orleans with silver bullion for the coinage of the standard silver dollars, the Treasury Department is inviting bids from bullion dealers at St. Louis, Denver, Omaha, and the more eastern points of the silver-producing regions for bullion deliverable at the New Orleans Mint. The bids will be received, opened, scheduled, and the awards made on Wednesday, as has heretofore been the practice in relation to the other mints. Arrangements are being made by which the bullion can be shipped to New Orleans as cheaply as to New York from the points indicated.

The San Francisco *Bulletin* of the 10th inst. says :

"The government yesterday purchased 75,000 ounces fine silver in this city for delivery at the Mint. Of this quantity, the Nevada Bank furnished 60,000 ounces. Sherman has been able to procure but little silver here during the past three or four weeks, and the supply at the Mint must be running light. It looks as though it might be difficult to coin $1,000,000 in standard dollars this month. We learn from outside parties that the Hong Kong and Shanghai Bank has been purchasing all the available fine silver on the market for the China trade. The quantity is said to aggregate 250,000 ounces at from $1.09¼ to $1.09½."

The Subsidiary Coinage Bill.—The bill which has passed the House of Representatives and gone to the Senate, will, when it becomes a law, not only relieve merchants of the necessity of selling their surplus small silver coins at a discount, but also, probably, retire from circulation the little silver half-dimes and three-cent pieces, which are now such a nuisance.

The amendments to this bill and the shape in which it will probably pass the Senate proposing to make the trade-dollar legal tender and to reissue paper fractional currency, were withdrawn. Mr. Stephens stated that the Committee on Coinage would report a bill to redeem trade-dollars and recoin them into standard silver dollars. The bill as passed provides that holders of fractional silver coins, on presenting them in sums of $20, or any multiple thereof, at the office of any Assistant Treasurer, may receive therefor lawful money, and that such coins shall be exchanged at Sub-Treasuries for lawful money in like sums upon demand. This makes minor silver coins and other lawful money of the United States interchangeable in sums of $20. The third section provides that these coins shall be a legal tender for all dues, public and private, in all sums not exceeding $20, and the fourth section makes all United States coins of the face value of 25 cents and under receivable at all Post-Offices for postage or postage stamps in sums not exceeding $3. The Senate Committee on Finance lately adopted a resolution not to report any financial bills during the present session, but it is believed that an exception will be made in favor of the Stephens bill, and that it will be passed by the Senate before the close of the session.

Salt Lake Ore and Metal Market.

SALT LAKE CITY, Utah, April 25, 1879.

Argentiferous Lead (*Base Bullion*), $28 per ton for lead ; $1.12 per ounce for silver ; $20 per ounce for gold. The quotations for silver are based upon the silver in the lead of 80 to 120 ounces per ton of 2000 lbs.

The *Inter-Ocean's* correspondent under date of the 7th inst. says : "The shipments of bullion for the week ending April 5th were as follows : 7 cars bullion to Pittsburg, 34 cars to Omaha, 7 cars to Chicago—48 cars, 1,000,047 lbs.

The last sale of bullion was at $25 per ton for lead, $1.04⅞ per ounce for silver, and $18 per ounce for gold, which is the market price. The production of lead this year will fall off very largely unless the price advances in New York. Considering the price of fuel, which is equal to $24 per ton for coke delivered at the smelters. I doubt if there are any mines outside of Utah that can sell lead in any market for 1¼ cents per lb. If there was nothing but lead, of course it could not be done, but there are some mines so rich in silver that they will mine them on for the silver if they can not get any thing for lead, but the low-grade mines can not do it."

FINANCIAL.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore, for the week ending the 25th inst. are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales : Shares.
American Coal Co.	$25	.....	.....	.....	.....
St.L.,I.M.& S.R.Co.	100	23½	18½	15½	31,811
Spring Mt. Coal Co.	50	.....	.....	50	.....
*Cambria Iron Co.	50	.....	.....	65½	300
*Penn. Salt Mf'g Co.	50	.....	.....	73	.....
*Westm'land C. Co.	50	.....	.....	53	.....
*Buck Mt. Coal Co.	50	.....	.....	37	.....
*Schuyl. Nav. Co.	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	104⅛	104	104¾	605
†B.&O.RR.Co.2d pf	100	.....	.....	99	.....
" " " " com	90	.....	.....	87	34
†George's C'k C. Co	100	.....	.....	55	.....
†S. Clara M'g Co.	100	.....	.....	25	.....
†Atlantic Coal Co.	10	.....	.....	80	.....

BONDS.	Prince'l. When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1891	J. & D.	108	106½	$8,000
" " " 2d mtge.	1882	M. & S.	.....	.....	.....
N.J.C.,1stmtge.new	1890	F. & A.	115½	.....	6,000
" " " 1st mtge.,con	1899	Q.	87½	86½	*613,000
" " " convt.	1902	M. & N.	88	86⅞	*54,000
Lehigh & W. B., con	1899	Q.	75	.....	†116,000
Am. Dock & Imp. 7s	.....	J. & J.	.....	.....	.....
St.L.I.M.& S.,1st mt	1892	F. & A.	111¼	111	11,000
Ches. & O., 1st mtge	1899	M. & N.	.....	.....	.....
D & H C Co.,1stm.rg	1884	J. & J.	99	.....	16,000
" " " " " "	1891	J. & J.	99	98½	35,000
" " " " "m.loan cp	1894	A. & O.	98½	98	6,006
" " " " " rg.	1894	A. & O.	96¾	96⅝	16,000
" " " " " new mtge.	.....	.....	.....	.....	.....
*L.V.R.,1stm.6s.cp.	1898	J. & D.	.....	.....	.....
" " " rg.	1898	J. & D.	.....	.....	.....
" " " 2d m. 7s,rg.	1910	M. & S.	118	117½	9,000
" " " con.m.6s,rg	1823	J. & D.	102¼	.....	1,000
" " " 6s cp.	1923	J. & D.	102	.....	2,000
*Pa.RR.,1st m.6s,cp	1880	J. & J.	105	104¾	5,000
" " g. m., 6s, cp.	1910	J. & J.	112	111½	6,000
" " 6s, rg.	1910	A. & O.	112¼	.....	3,000
" " con.m.6s,rg.	1905	Q.	104½	.....	9,000
" " " 6s, cp.	1905	J. & D.	104½	103¼	36,000
" " new loan, 5s	.....	.....	113¼	112¾	9,300
*P.& R. R., 1st m.6s, R. C. 43-44	1880	J. & J.	.....	.....	.....
P. & R. R., 1st m. 6s, R. C. 48-49	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	115½	.....	1,000
" " " scrip	1882	J. & J.	60	53¾	7,080
" " " in.m.7s,cp	1896	J. & D.	60	58	12,000
" " " c.m.7s,cp.	1911	J. & D.	106⅝	106½	8,000
" " " 7s. rg.	1911	J. & D.	106¾	105½	27,000
" " " cvt.7s,R.C	1893	J. & J.	58	.....	5,000
" " C.& I.Co.,Deb 7s, R. C.	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.	'92-3	various	.....	.....	.....
*L.Nav.Co.,6s,rg.m.	1884	J. & Q.	105	104¾	2,000
" " RR., rg. m.	1897	F. & Q.	.....	106	.....
" " cvt. co. G. R.	1894	M. & S.	.....	93	.....
" " " Gold R. C.	1897	J. & D.	93½	92½	21,000
" " con.m.7s,rg.	1911	J. & D.	70	.....	9,000
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	118½	.....	1,000
*Pa Canal, 6s. cp.	1910	J. & J.	70	67½	6,000
*Schuyl.Nav.,1st m. 6s. rg.	1897	M. & Q.	.....	90	.....
*Sus.Coal, 6s, rg.	1911	J. & J.	92	.....	11,000
†Balt.&O. RR., 6s.	1880	J. & J.	102¼	.....	1,000
" " " " 6s.	1885	A. & O.	.....	106	.....

Total transactions for the week $1,061,380

* Assented. † $110,000, selling at 52¾@51.

COAL STOCKS.

NAME OF COMPANY.	Capital Stock.	SHARES. No.	SHARES. Par Val.	Last Dividend. Mo.	Y.	Rate per Ann. A't.	Apr. 19. H.	Apr. 19. L.	Apr. 21. H.	Apr. 21. L.	Apr. 22. H.	Apr. 22. L.	Apr. 23. H.	Apr. 23. L.	Apr. 24. H.	Apr. 24. L.	Apr. 25. H.	Apr. 25. L.	SALES.
	$		$			Per c'nt													
Consol. Coal.	10,250,000	102,500	100	Jan.	77	2½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & H. C.	20,000,000	200,000	100	Aug	76	4	42¼	41¾	42½	41⅛	41⅛	41	42⅛	41⅛	44⅛	42¾	46	45⅜	7,659
D., L.&W. RR.	26,000,000	524,000	50	July	76	2½	52¼	51⅛	52⅜	51¼	51¼	50⅜	52⅜	50¾	52½	51⅞	53⅜	52	143,704
Lehigh C.& N	13,250,000	208,971	50	Nov	76	1½	5½	16¼	16⅜	16¼	16¾	16⅛	16⅜	16⅛	17¼	16⅜	17¼	17⅛	3,534
Leh. V'y R. R	27,228,855	540,858	50	Mch	79	1	4	35½	35½	35¾	35½	35¾	35¼	35¼	35⅜	35½	35⅞	35¾	3,492
Maryl'd Coal	4,400,000	44,000	100	Jan.	76	1½	1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
N. J. C. R. R.	20,600,000	206,000	100	Apr	76	2½	2½	43⅛	42½	43⅛	42¼	42⅜	41⅞	43⅜	42	44⅜	43¾	45¼	44¼	52,758
Penn. Coal...	5,000,000	100,000	50	May	78	3	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. R. R...	68,870,200	1,337,404	50	Nov	78	3	3	36¼	36¼	36¼	36¼	36¾	36	36¼	36	36⅛	36½	36¼	30,445
Ph. & R. R. R	34,278,175	685,563	50	Jan	76	2½	10	14⅜	13⅞	15	14½	14⅜	14½	14⅜	14½	15⅛	14¾	15½	15⅜	51,583

Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted, so much per share.

The Delaware and Hudson Canal Co. has paid in dividends to date $38,821,104, and the Philadelphia and ,497 Reading $43,012

Total Sales.....302,175.

Coal Stocks.

NEW YORK, Friday Evening, April 25, 1879.

The coal stocks have advanced steadily during the week, under rumors—which are still rife—of a new combination, and close to-night the highest of the day and week. Delaware, Lackawanna & Western was feverish until the 23d, when it rose from 50¾ to 53⅜ to-day, with sales of 143,704 shares, followed by Delaware & Hudson Canal, which opened on the 19th at 42 and closed to-day at 46. New Jersey Central sold during the week at from 41⅛ to 45¼, closing at the latter figure, with sales of 52,758 shares.

Philadelphia stocks have acted in sympathy with New York stocks, advancing steadily, though not in such a marked degree. For the first time in over a year the sales of Philadelphia & Reading have been greater than those of Pennsylvania, being 51,583 and 39,445 shares, respectively.

The semi-annual dividend period of the Pennnsylvania RR. Company will occur during May, and, inasmuch as the earnings of the company during the past six months have been more than sufficient to pay stockholders the same dividend as paid in November last, the question as to the amount which the Directors will decide upon at their meeting during the coming week creates considerable interest. The *Ledger* of to-day says of this:

"A semi-annual dividend of one dollar per share now is nearly equal to a 6 per cent per annum rate on the present price of the shares. The business of the company in the half-year from May to November is always greater than in the half-year from November to May; hence it will probably be found easier and perhaps better to defer the desired increase in the dividend until the November period. It is altogether important, in bringing the credit of the stock of this great company back to 6 per cent per annum, that no risk of attempting too much shall be incurred. A good many shareholders have felt sorely the inconvenience of the loss of dividends in the past few years, and there will be general rejoicing if the managers of the company can see their way clear to increase their dividend now; but permanence of dividends as regards the future should not be lost sight of as a first consideration."

ANNUAL MEETINGS.

Musconetcong Iron Works	May	5
Delaware & Hudson Canal Co	"	13
Lehigh Zinc Co	"	7

Gas Stocks.

NEW YORK, Friday Evening, April 25, 1879.

The market is dull, prices remaining the same as last week, with the exception of Manhattan, New York City, which has declined from 185 to 180 bid; Brooklyn from 140 to 139, and Metropolitan from 60 to 59. Mutual has advanced from 67 to 70 bid.

Sensible Action of a Foreign Gas Company.—The London *Gas Circular and Review* of April 11th, 1879, contains the following plan, adopted by one of the English gas companies, looking to the increased use of gas for domestic purposes, a plan which would return to every gas company in this country ten-fold its cost should they adopt something similar to it, and educate the people to the admirable advantages which gas possesses for this and many other purposes:

"At Coventry the gas company has taken up the matter of cooking by gas, and has set to work with a will to make the process popular. Premises have been secured in the city and they have entered into such arrangements as will admit of a large number of dinners being cooked daily, and as an inducement to consumers to adopt the principle, their dinners will, it is intimated, be cooked free of charge. The gas companies throughout the country are showing an amount of enterprise that few gave them the credit of possessing."

Edison's Electric Light.—An important specification, forming part of letters patent, application for which was made by Mr. Edison in England, in November last, was registered in the London Patent Office on the 17th ult. The patent having thus been granted, a practical demonstration of its working will shortly be given in the lighting up of the houses of Menlo Park. The features of the invention consist in continuous incandescence and thermostatic regulation of the intensity of the current.

Provision is made for preventing the coil or strip of platina or other metal, through which the electric current passes, from melting, and so destroying the apparatus, the current being regulated automatically, and this, by the heat evolved when certain temperatures are reached, being caused to move outwardly a yielding material, such as a diaphragm, which by means of contact points or circuit regulators, controls, by expansion or contraction, the passage of the electric current through the incandescent body. The drawings accompanying the specification show a simple automatic thermal regulator. Under this invention the supply of the electric current will be precisely adequate to produce the required degree of illumination, and admits of any amount of subdivision.

Natural Gas at Rochester, N.Y.—Mr. Baldwin, of Rochester, talks of drilling another gas-well near that of the Tumbler Company. Capt. Perry Brown also thinks of boring a new well. A meeting of citizens of Rochester is announced to consider the proposal of a steel works company to build works at Rochester if the citizens will take $10,000 worth of stock.

Lighting the Parks of New York.—Comptroller Kelly and Commissioners Wenman and Lane met on the 23d instant, and opened bids for the annual contracts of the Park Department. The bids for lighting the various city parks with gas, from April 30th to December 31st, inclusive, were as follows: Metropolitan Gas-Light Company, $13 per lamp; Harlem Company, $11.80; New York Mutual, $6.66.

The Globe Gas-Light Company of Boston is to be permitted a trial of gasoline upon 125 lamps on the common, the cost to the city not to exceed $20 a post per year, which is less than half the cost of coal-gas lamps.

Gas Legislation in New Jersey.—Among the bills passed by the late Legislature was one which provides that "no occupant of any tenement-house shall be deprived of the use of gas by reason of the existence of an unpaid gas-bill, provided that the applicant shall himself be clear on the books of the company."

The Electric Light in Mines.—The Excelsior Water and Gravel Mining Company, Cal., has just put into successful operation, in their Deer Creek mine, the Brush patent electric light, the first ever introduced in a hydraulic claim.

An effort is being made to introduce the electric light in the coal mines of Great Britain, with prospects of success.

The British Parliament on the Electric Light.—On the motion of Viscount Sandon, a Select Committee of the House of Commons has been appointed to consider whether it is desirable to authorize municipal corporations or other local authorities to adopt any schemes for lighting by electricity: and to consider how far, and under what conditions, if at all, gas and other public companies should be authorized to supply light by electricity.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York:

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	DIVIDENDS. Am. of last.	DIVIDENDS. Date of last.	QUOTATI'NS Bid.	QUOTATI'NS As'd.
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	6	1½	Apr., '79	70	75
" Bonds	90,000	1,000	6	3½	Feb., '79	99	102
N. York "	4,000,000	.....	8	4	Nov., '78	100	105
Metrop. "	2,500,000	100	10	5	Feb., '79	120	125
" Certfs.	1,000,000	.....	7	3½	Feb., '79	100	102
Harlem "	1,850,000	50	6	3	Feb., '78	40	50
Manhat. "	4,000,000	50	....‡	5	Feb., '79	180	190
Brooklyn, Bkln.	2,000,000	50	15	5	Jan., '79	139	142
Nassau	1,000,000	25	....‡	3	Jan., '79	70	80
" Certfs.	700,000	1,000	7	3½	Nov., '78	92	96
People's	1,000,000	10	....‡	3½	Jan., '78	26	30
" Certfs.	300,000	1,000	7	3½	Jan., '79	75	80
" Bonds	325,000	.....	7	3½	Dec., '78	90	96½
Metrop. "	1,000,000	100	5	2½	Nov., '78	59	62
W'msb'g "	1,000,000	50	8	1½	Jan., '79	80	90
" Certfs.	1,000,000	.....	7	3½	Jan., '79	90	95
Citizens'	1,200,000	20	....‡	3	Jan., '79	70	80
" Certfs.	320,000	1,000	7	3½	Apr., '79	90	100
J. C., N. J.	750,000	20	10	7½	Jan., '79	140	150
Municipal, N.Y.	466,000	50	.....	.....	.....	110	120
" Bonds	750,000	.....	.....	.....	.....	95	....
.....	.....	.....	.....	.....	.....	.....	...

Gold and Silver Stocks.

NEW YORK, Friday Evening, April 25, 1879.

There has been a falling off in the dealings in the low-priced "fancies," and, as a consequence, a falling off in the number of shares sold; but, reduced to dollars and cents, there has probably been an increase.

The San Francisco stocks are attracting a great deal of attention. The old bonanzas, for instance, are being as largely dealt in here as they were in San Francisco, according to latest advices. We note the following sales: Bodie, 740 shares, at $11@$7⅝, declining to $7⅝, under the announcement of an assessment; California, 2000, at $6½@7⅝; Consolidated Virginia, 5615, at $6¼@$7⅝; Eureka, 100, at $15½; Grand Prize, 275, at $3.50@$3.75; Independence, 3565, at $2.25@$2.90; Leeds, 10@70c.; Bechtel, 100, at $1.80; Consolidated Imperial, 1050, at $1.50@$1.55; Humboldt, 500, at 25c.; Julia, 60, at $4¼; Kossuth, 100, at 16c.; Leviathan, 4000, at 50c.; 400 Tip Top, at 80c.; Tuscarora, 2650, at 7@16c.

The dealings in mining stocks at the New York Stock Exchange, although making an insignificant record alongside of the railroad securities, are nevertheless very encouraging to the mining interests, as indicating a growing interest among the leading investors and speculators. The dealings at this Exchange have been as follows: Homestake, 205, at $32@$31; Ontario, 170, at $40@$39¾; Standard, 5320, at $26@$28¾; Mariposa, Preferred, 700, at $8¼@$6½; Mariposa, Common, 2000, at $7¾@$5¼; Quicksilver, Preferred, 510, at $38¼@$36¾; Quicksilver, Common, 1160, at $13@$16¼; Sutro Tunnel, 26,525, at $4⅛@$4¼.

In the leading stocks listed at the Mining Exchange, there has been a very active and encouraging business, the sales being as follows: Findley, 17,450 shares, at 57@52c.; Hukill, 100, at $2.50; Leadville, 12,950, at $2.60@$3.10; Moose, 2800, at $3@$3.25; New York & Colorado, 1200, at $1.75@$1.65; Plumas, 1075, at $3.15@$3.35; Seaton, 200, at 75@85c.; King's Mountain, 100, at $1.50; Trio, 6050, at 59@65c.

The fancies have been rather quiet, with dealings as follows: Bertha & Edith, 72,700 shares, at 28@32c.; Buckeye, 37,700, at 40@43c.; Dahlonega, 40,200, at 23@26c.; Gold Placer, 22,500, at 23@28c.; Lacrosse, 4500, at 27@32c.

The dealings in mining stocks at our Exchanges this week aggregate over $500,000. The dealings in San Francisco for the week ended the 15th inst. were but $880,000. The direct purchases by Eastern speculators and investors have gone largely to make up the business in San Francisco business.

As mining is only in its infancy here, the above showing is a very favorable one. Of course business is unusually quiet in San Francisco; but the East must eventually be the great mining market.

Mr. Rothwell, our managing Editor, started for Utah on Wednesday. He will probably be absent in the mining districts for a considerable time. Those desiring his professional services can communicate or call at this office. He expects to visit most of the active camps, and will probably go to Montana.

The subscriptions to the Dunderberg stock are coming in very satisfactorily, as, from the merits of the mine and management, we expected would be the case. The indications are very favorable to a speedy disposal of the remaining stock.

From the organization of the Horn-Silver Mining Co. (February 18th) to March 31st, the company's smelter produced 27 car-loads of bullion, weighing 580,234 lbs., which contained 577,434 lbs. lead and 40,973·94 oz. of silver. The Frisco smelter, running on the company's ores, produced 37 car loads of bullion, weighing 757,236 lbs., and containing 753,929 lbs. lead, 48,003·48 oz. silver, and 158·235 oz. gold. The boring for water at the smelter is down 350 feet, and an abundance of surface water has been secured. The refinery is handling about 12 tons of bullion per day. The company's stock is still selling at $17.50 per share.

The Leadville Mining Company has declared its second dividend of one per cent, or 10c. per share, payable on and after May 1st. The following dispatch was received from the Superintendent: "After ten days' hearing and full argument, Judge Hallett, of the U. S. Circuit Court, granted injunction against Little Giant, also granted us injunction against Etna, and denied injunction against us asked for by Etna."

The Leadville Mining Company has received a telegram saying: "Eight feet first-class ore in fourth level north." First-class ore is said to mean ore worth over $300 per ton. This is important, as it is the deepest working in the mine.

The Empire Gold Mining Company has declared its eighth dividend of 8 cents per share (par value of stock $10), payable April 30th.

We are promised a grand array of new mines on this market. The most important enterprise is the Fryer Hill combination at Leadville, which Senator Jones and Mr. Elkins have just visited. It is said that if all the mines are united, a company with a capital of from $30,000,000 to $50,000,000 will be organized, and the whole group sold at not over $10,000,000. If the Little Pittsburg Consolidation is put forward by itself, a company with a capital of $10,000,000 to $15,000,000 will be formed, and these mines will be offered for not over $5,000,000. The Bulwer, of the Bodie (Cal.) District, is to come here, and, preparatory to this we notice that the capital stock has been increased from 50,000 shares, or $5,000,000, to 100,000 shares, or $10,000,000. The Father De Smet, of the Black Hills, is also to come here. Two other first-class mines from the Black Hills will probably be put forward during the summer. A consolidation of Colorado mines will probably be offered for subscription, through a very respectable house, in a few days. In addition to this, there are numerous enterprises of lesser merit. The efforts to raise the large amount of capital necessary to absorb all of these stocks will try the market very much; but then the growth, so far, has been so rapid, that we should not be surprised to see them all go through smoothly, especially if they are properly put forward.

REVIEW OF THE SAN FRANCISCO MARKET.

Prices of mining shares on the San Francisco market have been well maintained during the business of the past week. Indeed, in the majority of instances an improvement is noticeable, and we are told that, were it not for the unsettled feeling so generally prevalent, pending the vote on the new constitution, a "booming" market would set in. Telegraphic advices report a great deal of activity in the Sutro Tunnel, and the most energetic prosecution of the work. The extraordinary demand for real estate at the town of Sutro has brought about an appreciation of four-fold in property there, and the prospects for an immense output of Comstock ore to this place on cars, in a few months from now, are very promising, and affords sufficient reason for this advance.

In mines outside of the Comstock, on the Pacific Coast, the promises were never better. In Arizona the press without exception predict a greater output during the present year than during any previous year in the history of the Territory, some fixing the

GENERAL MINING STOCKS.

Dividend Paying Mines.

NAME AND LOCATION OF COMPANY.		Feet on Vein.	Capital Stock.	SHARES. No.	SHARES. Par Val	ASSESSMENTS. Total levied to date.	ASSESSMENTS. Date and amount per share of last.		DIVIDENDS. Total paid to date.	DIVIDENDS. Last Dividend.		Rate p. An	HIGHEST AND LOWEST PRICES PER SHARE IN CURRENCY AT WHICH SALES WERE MADE. Apr. 19. H.	Apr. 19. L.	Apr. 21. H.	Apr. 21. L.	Apr. 22. H.	Apr. 22. L.	Apr. 23. H.	Apr. 23. L.	Apr. 24. H.	Apr. 24. L.	Apr. 25. H.	Apr. 25. L.	SALES.
Alps	Nev.	800		30,000		204,000	Aug. 1878	$1 00	37,500	Apr. 1876	$0 05													
Belcher, G. S.	Nev.	1,040	10,400,000	104,000	100	1,496,200	Feb. 1879	1 00	15,397,200	Apr. 1876	1 00													
Bobtail, G	Col.	2,500	1,136,630	227,326	5	*			90,930	Nov. 1878	15													
Bobtail Tunnel, G	Col.		100,000	20,000	5	52,000	July 1873	0 30	56,000	Dec. 1879	40													
Bodie, G	Cal.		5,000,000	50,000	100	25,000	Feb. 1878	0 50	800,000	Jan. 1879	1 00		8¾		9	8¾	11	10	10		9	8½	8	7⅜	740
California, G. S.	Nev.	600	54,000,000	540,000	100				30,240,000	Jan. 1879	1 00		7	6½	6⅞	6¾	7¼	7	7¼	7	7⅜	7¼	7¼	7	2,000
Calumet & Hecla, C	Mch		2,000,000	80,000	25	1,200,000			13,850,000	Feb. 1879	5 00		177		1.72		173	172½	173		174				77
Central, C	Mch		500,000	20,000	25	100,000	June 1862	0 65	1,260,000	Feb. 1877	5 00													
Chollar, G. S.	Nev.	700	11,100,000	112,000	100	1,750,000	Sept. 1878	5 00	3,040,000	Feb. 1872	1 00													
Copper Falls, C	Mch		1,000,000	20,000	50	535,000	May. 1876		100,000	Nov. 1871	1 00													
Cons. Virginia, G. S.	Nev.	710	54,000,000	540,000	100	474,600	June 1873	3 00	40,770,000	Apr. 1879	50		6⅞	6¾	6¾	6⅝	7½	6¾	7	6½	7½	7⅛	7⅜	7⅛	5,615
Confidence, G. S.	Nev.	130	2,496,000	24,960	100	256,320	Apr. 1878	0 50	78,000	May. 1865	8½													
Cons. Her. & Roe	Col.	16,500	1,000,000	100,000	10	*																		
Crown Point, G. S.	Nev.	600	10,000,000	100,000	100	1,973,370	Dec. 1878	1 00	11,588,000	Jan. 1875	2 00													
Daney	Nev.	2,000		108,000		91,800	Nov. 1878	0 20	56,000	July 1863														
Eureka Cons., G. S. L.	Nev.		5,000,000	50,000	100	100,000	May. 1876	1 00	3,600,000	Feb. 1879	2 00						15½								100
Eureka G. Mg., G	Cal.	1,680	2,000,000	20,000	100				2,149,000	Apr. 1878	0 25													
Findley, G	Geo.		200,000	200,000	1				6,000	Apr. 1879			57c	55c	55c	53c	55c	53c	53c	52c	54c	53c	54c	53c	17450
Franklin, C	Mch		500,000	20,000	25	360,000	June 1876	5 00	585,000	Nov. 1871	1 00													
Gila	Ariz			100,000		70,000	Jan. 1879	0 25	50,000	Aug. 1875	0 25													
Gould &Curry, G. S.	Nev.	612	10,800,000	108,000	100	2,936,000	Mar. 1879	1 00	3,826,800	Oct. 1870	10 00													
Grand Prize	Nev.	1,500		100,000		100,000	July. 1878	1 00	400,000	Feb. 1878	1 00		3.50		3.75		3.75		3½		3.60				275
Hale & Norcross, G. S.	Nev.	400	11,200,000	112,000	100	3,082,000	Mar. 1879	1 00	1,598,000	Apr. 1871	5 00													
Homestake, G	Dak		10,000,000	100,000	100				120,000	Feb. 1879	30		32c	31c							31⅝				205
Hukill, G. S.	Col.	3,288	1,000,000	100,000	10	*				Dec. 1878	0 10												2.50		100
Independence	Nev.	1,500		100,000		75,000	Feb. 1878	15	150,000	Nov. 1878	25		2.50	2.25	2.70	2.60	2.65	2.60	3	2.75	2.90	2.80	2.85		3,565
Kentuck, G. S.	Nev.	95	3,000,000	30,000	100	300,000	Aug. 1878	1 00	1,252,000	Mar. 1870	5 00													
K. K. Cons	Nev.			50,000		300,000	Jan. 1879	1 00	50,000	Sept. 1873	0 25													
Leadville	Col.		2,000,000			*			20,000				2.65	2.60			2.70	2.60	2.75		3.10	2.75	3.65	2.90	12950
Leeds	Uth.	3,000		60,000					78,000	Oct. 1878	0 15												70c		10
Leopard, L. G. S.	Nev.	1,500	5,000,000	50,000	100	225,000	Mar. 1879	50	162,500	Dec. 1876	0 50													
Manhattan	Nev.			50,000		50,000	Oct. 1878	1 00	400,000	Feb. 1877	1 00													
Merrimac, S	Mas.	1,500	500,000	100,000	5	*	June		120,000	Mar.														
Minesota, C	Mch.		1,000,000	20,000	50	436,000		1869	1 00	1,820,000	Mar. 1876	0 50												
Modoc	Cal.	4,000		100,000		450,000	Feb. 1879	0 50	50,000	Dec. 1876	0 50													
Moose	Col.	39,000	2,000,000	200,000	10	*			550,000	Mar. 1878	0 25		3				3.10		3.10		3.25	3.20	3.20	3.15	2,800
National, C	Mch.		500,000	20,000	25	195,000	Oct. 1875	1 00	360,000	Oct. 1873	1 00													
N. Y. & Colorado, G	Col.		1,000,000	50,000	20	*			20,000	Mar. 1877	0 20		1.75	1.70	1.70	1.65							1.70		1,200
Northern Belle, S	Nev.	1,600	5,000,000	50,000	100				1,425,000	Feb. 1878	1 00													
Ontario	Uth.	3,000	10,000,000	100,000	100				2,100,000	Apr. 1879	50		40		40	39⅞	39¾								170
Ophir, G. S	Nev.	675	10,080,000	100,800	100	3,436,800	Nov. 1878	1 00	1,394,400	Mar. 1864	4 00													
Pewabic, C	Mch.		500,000	20,000	25	185,000	June 1868	3 00	460,000	July 1873	1 00													
Potosi, G. S	Nev	700	11,000,000	112,000	100				§															
Phœnix, C	Mch.		1,000,000	20,000	50	817,500	Sept. 1870	3 00	10,000	Dec. 1876	1 00													
Plumas	Cal.		1,000,000	100,000	10				130,000	Apr. 1879	8		3.15		3.15						3.20	3.15	3.35	3.20	1,075
Quincy, C	Mch.		200,000	20,000	10				2,230,000	Feb. 1878	5 00								11						10
Raymond & Ely, G. S.	Nev.	5,000	3,000,000	30,000	100	730,000	Jan. 1879	1 00	3,075,000	Sept. 1873	3 00													
Ridge, C	Mch.		500,000	20,000	25	200,000			90,000	Feb. 1875	1 00								1						100
Rye Patch	Nev.	1,600		30,000		157,500	Dec. 1878	1 00	105,000	Dec. 1877	0 25													
St. Joseph, L	Mo.	2,000 acs.	1,000,000	100,000	10				250,000															
Savage, G. S.	Nev.	800	11,200,000	112,000	100	4,196,500	Feb. 1879	1 00	4,460,000	June 1869	3 00													
Seaton, G. S.	Col.	1,700	500,000	50,000	10	*				May 1877	0 10						75c		85c						200
Sierra Nevada, G. S.	Nev.	3,650	10,000,000	100,000	100	2,550,000	Apr. 1879	2 00	102,000	Jan. 1871	1 00													
Silver Islet	Mch												58		59				57¼	56½	57				376
Silver King	Ariz	1,500	10,000,000	100,000	100				450,000	Nov. 1878	0 50													
Standard	Cal.		10,000,000	100,000	100	50,000	July 1878	1 00	950,000	Mar. 1879	0 50		28	26	28	27½	28½	28	28½	28	28⅛		28¾	28	5,320
Yellow Jacket, G. S.	Nev.	1,200	12,000,000	120,000	100	4,038,000	Apr. 1879	1 00	2,184,000	Aug. 1871	2 50													
McClinton	Cal.	1,000		60,000		45,000	Dec. 1878	0 25																

Non-Dividend Mines.

Allouez, C	Mch.		1,000,000	20,000	50	940,000	May	1876	5 00																	
Alpha, G. S.	Nev.	306	3,000,000	30,000	100	240,000	Mar.	1878	1 00																	
Alta	Nev.	600		108,000		1,101,000	Feb.	1879	1 00																	
Am. Flag, G	Col.	5,300	600,000	60,000	10	*																				
Andes	Nev.	2,000		100,000		355,000	Oct.	1878	0 25																	
Baltimore Cons	Nev.	1,050		84,000		1,015,000	Apr.	1878	0 50																	
Benton	Nev.	600		108,000		91,800	Dec.	1878	0 50																	
Bechtel	Cal.			60,000		81,000	Feb.	1879	0 10																	100
Bertha & Edith, G	Vir.	645 acs.	500,000	500,000	10	*													1.80							72,190
Best & Belcher, G. S.	Nev.	545	10,080,000	100,800	100	639,390	Apr.	1879	1 00				29c		31c	29c	30c	28c	29c	28c	30c	29c	32c	26c	
Boyle	Nev.	600		108,000		16,210	Aug.	1878	0 15																	
Buckeye	Col.		2,000,000	400,000	5	*																				
Bullion, G. S.	Nev.	943½	10,000,000	100,000	100	3,002,000	Dec.	1878	1 00				41c	40c	40c		41c.	39c	40c	37c	43c	40c	43c	41c	37,700
Caledonia, G. S.	Nev.	2,188	10,000,000	100,000	100	1,640,000	Apr.	1879	0 50																	
Cashier	Col.		500,000	250,000	2	*																				
Challenge	Nev.	90		50,000		10,000	Nov.	1878	0 20																	
Cleveland, G	Col.	3,715	250,000	25,000	10	*																				
Cons. Imperial, G. S.	Nev.	468	50,000,000	500,000	100	875,000	Feb.	1879	0 20				1.50		1.50		1.55		1.55		1.55		1.50		1,050
Con. N. Slope & E. T.C.	Col.	15,000	500,000	10,000	50	*																				
Con. Pacific	Cal.	1,400		60,000																						
Dahlonega	Ga.		250,000	250,000	1	*							25c	23c	26c	24c	26c	24c	26c	25c	25c		25c		40,200
Dana, C	Mch.		500,000	20,000	25	68,000	Jan.	1863	0 50																	
Dawson, S	Ont.		1,200,000	60,000	20			1878																		
Day	Nev.	1,500		100,000		70,000	Feb.	1879	0 15																	
Dayton	Nev.	1,600		100,000		750,000	Apr.	1878	0 25																	
De Frees	Ariz	1,500		100,000		115,000	Oct.	1878	15																	
Duncan, S	Ont.		1,200,000	60,000	20	75,000	July	1876	41⅔				4		4				4¼	+	4½	4			783
Exchequer, G. S.	Nev.	400	10,000,000	100,000	100	480,000	Feb.	1879	1 00																	
Gold Placer, G	Col.		5,000,000	200,000	25								26c	24c	26c	24c	28c	25c	26c	24c	24c		25c	23c	22,500
Granville, G	N. C.	357 acs.	1,000,000	100,000	10	*							16c	15c											2,000
Humboldt, C	Mch.		500,000	20,000	25	100,000	Sept	1878	0 15												25c				500
Hussey	Nev.	4,500		100,000		110,000	Jan.	1879	0 15																	
International, S	Ont.		1,200,000	60,000	20								45c								55c	50c			1,750
Julia, G. S.	Nev.	3,000	11,000,000	110,000	100	872,500	Jan.	1879	1 25														4¼		60
Justice, G. S.	Nev.	2,100	10,500,000	105,000	100	2,763,500	Jan.	1879	1 00																
King's Mountain, G	N. C.		1,200,000	120,000	10	*							1.50												100
Kossuth	Nev.	2,700		108,000		421,200	Aug.	1877	0 15														16c		100
Lacrosse	Col.	3,900	1,000,000	100,000	10	*									28c		27c	26c	32c	27c	27c		27c		4,500
Leviathan	Nev.	2,000		100,000		265,000	Mar.	1879	25				50c										50c		4,000
Luzerne	Col.	4,200	5,000,000	500,000	10	*									32c	31c									200
Madison, C	Mch.		500,000	20,000	25	123,000	Sept	1876	0 10																
Mariposa preferred	Cal.	44,387	5,000,000	50,000	100	1,425,000	June	1877	1 00				8¼	7			6½		6½						700
" common	Cal.	acres.	10,000,000	100,000	100	1,425,000	June	1873	1 00				7¾	6½			6½	5½	5½		6	5¾	6⅞	6¾	2,000
McCracken	Ariz	4,500		100,000		100,000	Oct	1878	0 50																
Martin White	Nev.			100,000		650,000	Dec.	1878	1 50																
Mesnard, C	Mch.		500,000	20,000	25	160,000	Apr.	1876	0 50																
Mexican, G. S.	Nev.	600	10,080,000	100,800	100	217,400	May.	1878	0 50																
Minnietta Belle	Cal.	1,500		100,000		75,000	Apr.	1878	0 50																
Mt. Bross Tunnel	Col.	8,600	2,000,000	200,000	10	*		1878																	
Navajo	Nev.	1,500		100,000		145,000	Feb.	1879	0 20																
New York	Nev.	1,000		100,000		800,000	Feb.	1879	0 40																
Occidental	Nev.	1,706		40,000		72,500	Feb	1877	0 25																
Orig. Keystone	Nev.	1,500	1,000,000	100,000	10	50,000	Oct.	1878	0 50																
Overman, G. S.	Nev.	1,200	3,840,000	38,400	100	3,404,280	Jan.	1879	3 00																
Osceola, C	Mch.		1,000,000	40,000	25	2,567,880	Nov.	1877	3 00																
Petherick, C	Mch.		500,000	20,000	100	165,533	Mar.	1876	0 50																
Pleasant View, G	Col.	1,200	200,000	20,000	10	*																			
Quicksilver preferred	Cal.	8,500	4,291,300	42,913	100	*											37¼	37					38¼	36¾	510
" common	Cal.	acres.	5,708,700	57,087	100	*									13		13⅜	13¼			§ 13½	13¼	16¼	14	1,160
Rockland, C	Mch		500,000	20,000	25	495,000	Jan.	1874	1 00																
Seg. Belcher, G. S.	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00																
Silver Hill, G. S.	Nev.	5,400	10,800,000	108,000	100	1,404,000	Apr.	1879	0 50																
Silver Prize	Nev.	1,500		100,000		65,000	Feb.	1879	0 25																
Star, C	Mch.		500,000	20,000	25	265,000	Mar.	1876	0 50																
Superior, C	Mch.		500,000	20,000	25	340,000	Mar.	1878	0 25																
Sutro Tunnel	Nev.		20,000,000	2,000,000	10				0 50				4½		4½	4½	4½	4⅜	4½	4⅜	4¾	4¼	4½	4⅜	26,525
Tiptop	Ariz			100,000		120,000	July	1878					85c	80c	80c		80c		80c						400
Tioga	Cal.	1,500		100,000		60,000	Dec.	1878	0 20																
Trio	Col.	1,250	150,000	150,000	1								59		65c	59c	60c	59c	60c	61c	59c		60c		6,050
Trojan	Nev.	1,500		100,000		265,000	Apr.	1879	0 25																
Tuscarora	Nev.			100,000		25,000	Mar.	1879	0 05						7c	..	11c	..	14c	6c	16c	12c	15c		§ 2,650
Union Cons. G. S.	Nev.		10,000,000	100,000	100	460,000	Apr.	1879	1 50																
Utah	Nev.	1,000		20,000		780,000	Feb.	1879	3 00																
Ward	Nev	1,200		110,000		99,000	Jan.	1879	0 30																
Wells Fargo	Nev.	1,500		108,000		216,000	Sept.	1878	0 50																

Total Assessment levied to date..... ....$65,617,613

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable. †4 3-16.
Total Dividends paid to date..... ... ..$154,128,330

Total Sales for the week..... ..... 262,570.

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	CLOSING QUOTATIONS						Opening.
	April 18.	April 19.	April 21.	April 22.	April 23.	April 24.	April 25.
Alpha	19¾	18½	19½	18½	18¾	19¼	19
Alta	4¾	4¾	5⅞	5	5½	5¾	6½
Argenta	....	....	....	....	....	....	....
Bechtel	....	....	....	....	....	....	....
Belcher	5⅝	5¾	5⅞	5¾	5⅞	5⅞	5¾
Belle Isle	....	....	....	....	....	....	....
Benton	....	....	....	....	....	....	....
Best & Bel	15¾	15½	16½	15¾	16	15⅞	16
BlackHawk	....	....	....	....	....	....	....
Bodie	8¼	8⅜	9	8¾	*8⅞	8	....
Booker	....	....	....	....	....	....	....
Bullion	4⅝	4¾	5¼	5	5⅛	5⅛	5¼
Bulwer	....	....	....	....	....	....	....
Caledonia	1¾	1⅞	1¾	1¾	1⅞	2	2
California	6¼	6⅝	6½	6½	....	6⅞	6⅞
Chollar	6	6	5¾	5¾	6	5¾	5¾
Confidence	13¼	13	13¾	13½	13½	14	....
Con. Imp	....	....	....	1⅜	1⅜	1⅜	1.36
Con. Va	....	5⅞	5⅞	5⅝	6⅜	6⅝	6⅝
Crown P'int	4⅞	4¾	5	4¾	4⅞	4¾	5
Endowm't	....	....	....	....	....	....	....
Eureka Con	15¾	14⅞	14½	14	14½	15	....
Exchequer	4¾	5⅛	5¼	5⅛	5⅝	5⅜	5¼
Goodshaw	....	....	....	....	....	....	....
Gould &Cur	8⅝	8⅛	8⅛	8¼	8½	8⅛	8⅛
Grand Prize	3⅛	3¼	3¼	3⅜	3½	3½	....
Hale & Nor	10⅝	11¼	11⅜	11	11⅜	11½	11
Hamburg	....	....	....	....	....	....	....
Homestake	....	....	....	....	....	....	....
Hussey	....	....	....	....	....	....	....
Indep'd'nce	....	....	....	....	....	....	....
Jackson	....	....	....	....	....	....	....
Julia Con	3¾	3¾	3⅞	3¾	3⅞	3⅜	3¾
Justice	3⅜	3⅜	3⅞	3¾	4	3¾	4
Kentuck	4¾	....	....	....	4	....	5
Kossuth	....	....	....	....	....	....	....
Leopard	....	....	....	....	....	....	....
Leviathan	....	....	....	....	....	....	....
Manhattan	....	....	....	....	....	....	....
McClinton	....	....	....	....	....	....	....
MeadowVal	....	....	....	....	....	....	....
Mexican	31	32	33¾	33	33½	34¼	34
Mono	....	....	....	....	....	....	....
Navajo	....	....	....	....	....	....	....
North. Belle	8¼	8¼	8¼	7½	7¼	7	....
Ophir	....	25¾	27¼	25¾	26½	27¼	27
Orig. K'ys'e	....	....	....	....	....	....	....
Overman	9	9	9¼	9½	9½	9¾	10
P. Sheridan	....	....	....	....	....	....	....
Potosi	....	3¾	....	3¾	3⅞	3¾	3¾
Ray. & Ely	4¾	5	4½	4¼	*3¾	3⅞	....
Richer	....	....	....	....	....	....	....
Savage	10	10	10⅝	9¾	10	10	9⅞
Scorpion	....	....	....	....	....	....	....
Seg.Belcher	....	....	....	25	....	....	25
Sierra Nev	42¾	43	48¼	45	45½	46¼	46
Silver Hill	1¼	1¼	1¼	1¼	1¼	1¼	1¼
Silver King	....	....	....	....	....	....	....
Summit	....	....	....	....	....	....	....
Tioga	....	....	....	....	....	....	....
Tip Top	....	....	....	....	....	....	....
Union Con	58¾	59½	72	66	68	69	69
Utah	14	13¾	15⅛	14¼	14¼	14⅛	14
Ward	....	....	....	....	....	....	....
WashoeCon	....	....	....	....	....	....	....
Wells Fargo	....	....	....	....	....	....	....
Yel. Jacket	15¾	15½	15½	15½	15¾	15⅞	16¼
....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....

* Assessment $1.

minimum product at $10,000,000. The Bodie mines, in nearly every instance, are unquestionably proving valuable properties, the ore from some of them—the Bulwer, for instance—milling $200 per ton.

Alpha opens to-day at $19, the same as in our last.

Alta shows an improvement of $1.50 per share. The three-compartment joint Alta-Benton incline winze below the 1550 level has but 50 feet to run to reach the 1750 level, when cross-cutting is contemplated.

Belcher is firm ; the cross-cuts in this mine are reported as looking very encouraging.

Best & Belcher shows a slight advance ; the drain tunnel from this mine to the Osbiston shaft has 50 feet yet to run before connection can be made.

Bodie has levied an assessment of $1 per share. This stock closed yesterday at $8 per share—a slight decline. Rumors are current of a rich strike in this mine, probably through the west cross-cut recently started in the mine. The C. & C. shaft is 16 feet below the 2350 level.

Bullion has advanced $1 per share from the lowest price of the week, but opens the same as in our last. We note nothing of special interest from the mine.

We have no quotation of Bulwer. The stock has been fairly active in San Francisco at enhanced rates, some sales having been made at $22 per share. Reports and letters from this mine are of the most encouraging character, and developments thus far prove permanency, with no lessening in the remarkable richness of the ore.

Caledonia opens to-day at the best price of the week—$2 per share. Active work is being prosecuted in all parts of this mine.

Chollar and Confidence are unchanged.

Consolidated Imperial is weaker. The drift north on the 2600 level of this mine has been discontinued till the south drift, same level, has reached the Yellow Jacket workings.

The prices of the old bonanzas are fairly maintained, and at the present rate of production it would be quite reasonable to anticipate regular dividends again, the combined daily product of the two companies amounting to nearly 500 tons, in addition to a surplus on hand of $1,100,000, equally divided.

Consolidated Pacific opened in San Francisco to-day at $2 per share. The main shaft of this mine is down 200 feet, and it is proposed to sink 50 feet further before cross-cutting. The indications in this mine are reported as quite favorable.

A cross-cut east is being run in the Crown Point mine joint with the Belcher ; but it has not reached the vein yet. This stock is very steady.

Eureka Consolidated is a little off. There is no particular change noticeable in the mine.

Gould & Curry is very steady. The Osbiston shaft has been drained, and the work of sinking will probably soon be resumed. The drain-tunnel is making about eight feet per day, and has about 60 feet yet to run to reach the shaft.

Grand Prize does not seem to recover, the quotations being quite steady at the low position noted for some time past. The ore stopes in the upper levels of this mine are reported as looking well and producing considerable fair ore.

Hale & Norcross is unchanged, and the water in the mine held below the 2000 station.

Hamburg has been selling in San Francisco at 50c. per share. Nothing of special interest from the mine.

Highbridge continues its usual shipments, and the mine is said to look very well. The stock has been quite active in San Francisco, at 40c. per share.

Hussey has been sparingly dealt in on the San Francisco market at 65c. per share. A cross-cut has been started on the big ledge on the 400 level of this mine, with no particular developments as yet.

Independence opened in San Francisco to-day at $3 per share. The new shaft in this mine is down 370 feet ; rock hard. The company continues its regular shipments.

Julia is steady, and Justice shows a slight advance. The water is not quite all out of the 2000 level of the former mine, and sinking the winze from the 1800 level is slow, owing to the intense heat. It is still cutting quartz of a lively character.

The south lateral drift on the 1550 level of Justice is being continued. Prospecting there is still continued. Spots of very rich ore are encountered in places.

Kentuck has improved somewhat.

Leviathan opens in San Francisco to-day at 50c. per share. The usual favorable "indications" are reported from this mine.

Leopard has been selling on the San Francisco market at from 70c. to $1.50 per share. A high-grade ore is reported as being taken from the 200-foot level of this mine, and the company is cross-cutting on the 700 and 800-foot levels.

Martin White was selling in San Francisco yesterday at $5¾ per share. This company is making satisfactory shipments of bullion.

Manhattan shows some recovery in San Francisco from the low prices recently attained. A recent letter from this mine states that the ore from the different shafts is getting much richer, averaging nearly $200 per ton; and that the prospects of the company earning something are very favorable.

Mexican and Ophir have improved. The prospects in the former mine on the 1600 level are favorable. In the Ophir mine a marked improvement in the stopes going south is reported, the vein on the sixth floor above the 2000 level having widened considerably.

Northern Belle is lower. This company is shipping regularly.

Overman has advanced. The water in this mine is being rapidly exhausted.

Raymond & Ely is lower. This company has levied an assessment of $1 per share.

Savage is lower. The water in this mine is being held below the 2000-foot station.

Sierra Nevada and Union Consolidated show decided advances on our last, but some decline on the best prices of the week, which were on Monday, when the former stock touched $48¼, and the latter stock $72. A significant feature is noted in the announcement that the Sierrra Nevada Co. is building an ore-house of the largest character, over 100,000 feet of lumber being used in its construction. The streak of ore in the face of the incline of this mine is increasing in width as it is followed down by the sinking of the incline, and is reported to extend clear across the bottom. It is also alleged that at the top signs of another are coming in.

Silver King recently sold in San Francisco at $7.75 per share. A large three-compartment shaft is now being sunk in this mine. It is now down 200 feet. At 167 feet a cross-cut was made to the vein, which was reached after penetrating 47 feet, and proved to be 109 feet in width. Before the payment of dividends was stopped, in October of last year, when a dividend of 50 cents per share, being the ninth paid, and bringing the total up to $450,000, was paid, the stock sold at about $20.

Tip-Top has been quite active in San Francisco, at from 60 to 70c. per share. The *Prescott Enterprise* of the 12th inst. says of this :

"We are informed that another assessment has been levied, and shareholders may expect that it will be down to 50 cents or even less before long, and all this in face of the fact that the mine is yielding about $45,000 gross per month, and that the expense of working is about $25,000 per month. 'Freeze-out' is no doubt the game of the sharks who control the mine."

Yellow Jacket opens at $16¼ per share, the best price of the week. The Gold Hill *News* says of this mine, under date of the 17th inst. :

"The situation south of this mine is one of absorbing interest. The indications cut on the 2600 of the Imperial, the 2400 of the Exchequer, and 2150 of the Bullion are certainly very promising, when it is considered that all these workings are carried on outside the vein, and are encountered while running lateral drifts.

"The new shaft is rapidly nearing the 2400 level, and will reach it early next week."

San Francisco Stock Exchange Sales.—The *Commercial Herald* says : From our carefully-compiled record of the sales in the San Francisco Stock and Exchange Board we extract the following interesting figures for the first quarters of the years 1876, 1877, 1878, and 1879 :

MONTH.	1876.	1877.	1878.	1879.
January	$28,701,785	$18,355,160	$9,593,655	$5,820,050
February	17,204,105	9,393,545	5,610,875	5,773,095
March	35,925,385	9,534,805	10,922,485	5,924,540
Totals	$81,831,277	$37,283,510	$26,127,015	$17,517,685

From the above statement it will be observed that there is a remarkable falling off in the operations in mining stocks at San Francisco. Later reports of weekly transactions exhibit a still more marked decline ; the operations during the week ending April 15th, for example, only aggregating a total of $880,000, which would not be considered a respectable day's business in times past. Unquestionably, the unsettled feeling generally existing, pending the vote on the New Constitution, partially explains the present apathy, yet no doubt it is largely due to the withdrawal of capita to other fields.

The market for the week ending the 15th inst. is reviewed as follows :

"Business in the mining-stock market has been growing less for some weeks past, the sales in the San Francisco Board the past week aggregating only $880,000. It may be the lull before the storm, but the indications of the latter seem to be far beyond the ken in the signal-service business of any 'Old Probs.' It seems to be blowing low and quite harmlessly all over the entire field of stock operations ; and with the exception of some ripples in the direction of Bodie claims, a rather apathetic feeling prevails. Some say the Comstock has a number of water-covered bonanzas ; others, again, say there is nothing whatever in it ; and so speculation goes, back and forth in a gambling sort of way, that produces unrest and dissatisfaction for want of a movement ; and, in the mean time, spring is coming apace without the predicted record of a strong 'rise.' However, all fall back upon a hopeful expectancy —the usual way with all dealers."

ASSESSMENTS, with dates when delinquent : Twin Peaks, 15c., May 16th ; Trojan, 25c., May 15th ; Dudley, 25c., May 10th ; Caledonia, 50c., May 16th ; Phenix, 25c., May 20th ; Champion, 15c., May 26th ; Almaden Quicksilver, 25c., May 27th ; Silver Hill, 50c., May 13th ; Northern Light, 10c., May 14th.

The Queen Lee Mining Co. (Bodie) has rescinded the assessment levied March 6th.

The Idaho, of GrassValley, Cal., has declared a dividend of $5 per share, amounting to $15,000, payable immediately. This is the 116th dividend.

The Excelsior Water & Gravel Mining Co. has declared a dividend of 25c. per share.

San Francisco Ore and Bullion Shipments.—The *Commercial Herald* reports the following :

"The City of Sydney, for New Zealand, carried 2051 lbs. copper. The exports of pig-lead, bullion, etc., have become important with us, as will be seen by tables annexed.

"Our shipments by sea of lead for the quarters ending March 31st, 1878-79, are as follows :

	1878.		1879.	
	Tons.	Value.	Tons.	Value.
New York	1,696	$155,783	1,551	$128,680
China	737	64,754	.....	.....
Victoria	4	294	.....	.....
Mexico	1	83	.....	.....
Japan	.....	.....	61	4,282
Totals	2,438	$220,914	1,612	$132,962

"Our shipments by sea of base bullion for the quarters ending March 31st, 1878-79, are as follows :

	1878.		1879.	
	Tons.	Value.	Tons.	Value.
New York	1,779	$482,500	467	$88,000

Bullion Yield of Pacific Coast Mines for March, 1879.—The *Bulletin* reports the products of the leading mines as follows :

GOLD MINES.

Black Bear Quartz	$12,900
Bodie (estimated)	20,000
Bulwer	135,100
Caledonia (Dakota)	6,500
Excelsior Gravel	36,000
Golden Terra (Dakota)	10,700
Gold Stripe	5,300
Idaho (Nevada County)	51,200
La Grange	23,800
Milton Gravel	48,300
Original Amador	9,700
Pittsburg	5,600
Plumas Eureka	53,000
Sierra Buttes	30,500
Standard ($6500 in silver)	100,000
Total, fifteen gold mines	$543,600

The gold returns for March show an increase of 100 per cent over the February reports. The silver mines make the following show for March :

SILVER MINES.

Alexander	$37,700	Northern Belle	$114,200
Belmont	19,800	Ontario	59,700
Christy (Utah)	26,200	Paradise Valley	41,900
Extra ($5200 in gold)	25,500	Raymond & Ely	38,500
Grand Prize	48,000	Silver King (Ariz.)	35,000
Independence	31,500	Star	27,000
Leeds (Utah)	13,500	Tip Top (Arizona)	40,000
Manhattan	60,800		
Martin White	70,200	Total 16 mines	$689,500

Several mines heretofore reporting did not produce a dollar in bullion last month. Among these are Indian Queen, Eagle, Endowment, Day, Leopold, Panther, Hackberry, McMillen, Golden Star, Highbridge, McCrackin Consolidated, Comanche, Trojan, Silver Prize, and Justice. The March product of the gold and silver mines on the Comstock Lode was as follows :

GOLD AND SILVER MINES.

	Gold.	Silver.	Total.
California	$214,400	$246,900	$461,300
Con. Virginia	193,600	244,800	438,400
Ophir	39,200	58,400	97,600
Totals	$447,200	$550,100	$997,300

The above are the only Comstock mines that have been producing any bullion of late. The product of the first-named two is larger than for several previous months. The only base-metal mine that sends us any report for March is the Eureka Consolidated, which has yielded as follows for that month:

Gold	$127,000
Silver	132,200
Lead	74,700
Total	$333,900

The base-metal mines are either doing nothing at present, or they are doing poorly. Among these are the Hamburg, K K Con., Modoc Con., New Coso Con., and Tybo Con. The last-named has sent us reports regularly up to the present month. The Hillside has been turning out some bullion in the past few weeks, but no report is made. The gold and silver product of mines for March is as follows :

Gold mines	$537,100	
Gold with silver	452,400	
Gold with lead	127,000	
Total gold		$1,116,500
Silver mines	$684,300	
Silver with gold	556,600	
Silver with lead	132,200	
Total silver		1,373,100
Value of lead		74,700
Total		$2,564,300

The quantity of gold is $460,000 larger than in February, and the quantity of silver is $301,000 greater.

Exports of Gold and Silver from New York.

Week ending April 19th	$427,131
Corresponding week last year	
Since Jan. 1st this year	6,177,825
Corresponding period last year	5,388,006

Gold Interest Paid Out by the Treasury.

Week ending, April 19th	$292,553
Corresponding week last year	88,251
Since Jan. 1st this year	21,872,171
Corresponding period last year	22,977,040

Copper and Silver Stocks.

Reported by WILSON W. FAY & Co., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street.

BOSTON, Thursday Evening, April 24, 1879.

The past week has been an exciting one, the market showing more animation and activity than could be expected, and more in fact than it was thought capable of, without the all-important assistance of a rise in the price of copper ; but there is undoubtedly a regular old-fashioned "bull" movement on foot, which shows no immediate signs of diminishing in strength, and promises to develop a great deal of active speculation in all the stocks on the market.

Calumet & Hecla is strong, at 174@174½ (ex div.), having advanced from 172½.

Copper Falls is in demand at 15c. for stock on which the assessment is unpaid, there being orders in the market for over 2000 shares at about that figure. It closes strong, at 15@17c.

Franklin has caught the infection, and sold up to $6, and closes strong, at $5½@$6.

Humboldt has started up amid the general excitement, and sold at 25c. ; closes at 15@30c., and firm.

Osceola is also firm, having advanced from 12½ to 13¼ bid and 13½ asked.

Pewabic is rather quiet, at ⅝@⅞.

Quincy is firm, at 11¼@11⅜, and sales at 11¼.

Ridge is quite strong, at 1@1¼, and sales at 1⅛ ; and is talked of as going to higher figures.

Superior has also risen from the dust, and sold at 15c., the general public seeming willing to buy any thing in the shape of a stock certificate.

Duncan has advanced, and sold at 4½ ; and closes strong at 4½@4¾.

International has sold up to 55c., some 2000 or 3000 shares changing hands within a few days ; and closes strong, at 55@60c.

Silver Islet is not as strong as the rest of the market, having sold down to 57, and closing at 57@57¼.

Alta is steady, at 2@2⅛ ; sales at 2.

Commonwealth is firm at 70@75c., and sales at 70c.

Central Copper Mining Company's Annual Report.—From the report of the operations of this company for the year 1878, which was published in the Portage Lake *Mining Gazette* of the 17th inst., we make the following extracts :

The agent says : "The product of the mine for the year was :

783 bbls. stamp copper, weighing	1,011,750 lbs.
206 hhds. kiln " "	641,279 "
360 masses " "	1,064,083 "
Total	2,717,112 "

Or 1,358 1112-2000 tons.

Average yield of mineral per fathom of ground broken	1,001 lbs.
Average yield of ingot per fathom of ground broken	711 "

The quantity smelted was 1330 229-2000 tons, yielding 71 per cent, or 1,891,013 pounds of ingot copper, which realized an average price of 15 84-100 cents per pound.

Following is a statement of the ground broken during the year :

Sinking in shafts and winzes, 318 8-12 feet, average cost	$32.22
Drifting on the vein, 1477 5-12 feet, average cost,	10.55
Drifting on the conglomerate, 83 2-12 feet, average cost	9.73
Stoping on the vein, 1682 4-36 fathoms, average cost	17.29
Stoping on the vein, 79 110-216 cubic fathoms	22.24
Stoping on the conglomerate, 307 7-36 fathoms	26.74

The total amount of ground broken in openings and stopes is 2712 fathoms.

The following is a detail of the expenses of the stamp mill :

Cost of labor, stamping and washing	$5,578.27
" " 1097 cords of wood consumed	3,555.60
" " lights, oil, tallow, shovels, etc	200.99
" " repairs, materials, fixtures, etc	322.23
	$9,657.09

The total cost of washing and stamping per ton of rock was 69 70-100 cents.

The total amount of rock stamped was 13,858 tons, yielding 3 65-100 per cent of mineral.

The total running time of 24 heads was 106 days, stamping 5 45-100 tons of rock per head in 24 hours running time, and 12 63-100 tons of rock per cord of wood consumed.

The cost of breaking rock and tramming to mill was $1741 56-100, or 12 57-100 cents per ton

The number of men in the different departments of work, and their average wages per month, have been as follows :

Miners	175	Wages	$45.67
Surface men	33	"	36.47
Stamp men	12	"	39.84

The present force embraces 167 miners, 33 surface men and engineers, 11 stamp men, and 9 mechanics, making, with superintendent, mining captains, and clerks, 227 men employed by the company.

From the Director's report we learn that a dividend of $4 per share ($80,000) was paid to stockholders February 5th, 1879.

The property known as the "Madison mine," comprising some 1800 acres of land, having been sold under execution in July last, was purchased by us for the sum of $5848 71-100, as appears in the foregoing statement. It is not known that these lands have any special mineral value, but from their proximity to our mine, the timber and cordwood they contain can easily be made available for our use, and will undoubtedly reimburse the above outlay.

The total expenditure of the company to December 31st, 1877, was		$4,541,087.57
The expenditure in 1878 is enumerated in the following :		
Central mine	$159,822.89	
Expenses	8,665.27	
Freight	12,537.99	
Brokerage	1,493.51	
Smelting	23,110.31	
Fire insurance	63.75	
Marine insurance	1,440.32	
Storage	459.22	
		207,593.26
Dividends, Nos. 1 to 15		1,260,000.00
Real estate		26,752.09
Dock and warehouse		9,112.07
Cash in bank and United States Trust Co		125,905.13
Loans		5,000.00
Accounts receivable		2,483.12
Copper bills, not yet matured		16,638.38
Copper on hand, sold		70,106.08
		$6,264,677.61
Capital advanced by stockholders		$100,000.00

SALES OF COPPER.

Sales previous to 1878	$5,853,745.15	
Sales in 1878	$299,467.45	
Silver	522.45	
	299,989.90	
		6,153,735.05
Miscellaneous		10,942.51
		$6,264,677.61

NOTICE.

RICHARD P. ROTHWELL, MINING ENGINEER and Managing Editor of the ENGINEERING AND MINING JOURNAL, is now making an extended tour through the Mining Regions of the West, including Montana. Until about the 25th of May, his address will be the Walker House, Salt Lake City ; but parties desiring his professional services can obtain information at this office, and be put in communication with him by telegraph at any time.

FINANCIAL.

W. W. HANLY & CO., BANKERS AND BROKERS, 60 Broadway, New York,
Buy and sell mining stocks on commission on New York Mining Stock Exchange, and offer superior facilities on San Francisco Exchanges through agency of the Bank of California.

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THE PLUMAS
National Quartz Mining Co. of California.
Business and Transfer Agency of Company,
54 Broad Street, N. Y., Room 8.
Sole Agents for Sale of Stock, **L. P. BAYNE & CO.**
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DIVIDENDS.

OFFICE LEADVILLE MINING COMPANY,
NO. 57 BROADWAY.
NEW YORK, April 24, 1879.
DIVIDEND NO. 2.

The Board of Trustees have this day declared a dividend of ONE PER CENT on the capital stock of this company ($2,000,000), out of net earnings, payable at the office of the company on and after May 7th, 1879. Transfer-books will close on May 2d, and reopen May 9th.

J. S. LOCKWOOD, Secretary.

MEETINGS.

NEW YORK, April 15, 1879.

THE ANNUAL MEETING OF THE STOCKholders of the ADLAIDE CONSOLIDATED SILVER MINING & SMELTING COMPANY, OF LEADVILLE, COLO., for the election of Trustees, and such other business as may legally come before the meeting, will be held in accordance with the requirements of the certificate of incorporation, at 12 O'CLOCK, at 611 F Street, in the CITY OF WASHINGTON, D. C., on the SECOND TUESDAY (13th) of May, 1879. Polls open from 12:30 to 2 o'clock. Transfer Books will be closed on Tuesday, April 29th, at 3 P.M., and be re opened on Thursday, 15th day of May, 1879, at 10 A.M.

By order of Executive Committee.
WM. H. BARNARD, Secretary.

COPP'S U. S. MINING DECISIONS.—Gives in full the Mining Laws of July 26th, 1866 ; July 9th, 1870, and May 10th, 1872, with all the Circular Instructions and Important Decisions thereunder down to April, 1874. 8vo, law sheep ; pages 351. $4.50.
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CHEYENNE GOLD MINING COMPANY

OF BLACK HILLS, DAKOTA TERRITORY.

MINE LOCATED IN THE GREAT MINERAL BELT NEAR DEADWOOD.

ORGANIZED UNDER THE LAWS OF THE STATE OF NEW YORK.

CAPITAL STOCK, $1,000,000. PAR VALUE OF SHARES, $5.

FOREVER UNASSESSABLE.

R. P. CORMACK,.....President | D. B. CANOL..Vice-President and General Manager,
R. McNAUGHT.....Secretary and Treasurer | Deadwood, D. T.

This mine is situated in the heart of the Black Hills, and on the acknowledged richest gold belt on this continent, if not in the world.

The improvements on the mine consist of a shaft 36 feet deep, from which a drift has been run 21 feet, all in paying ore. On a level with the orifice of the shaft a drift has been driven 42 feet, with a northeasterly cross-cut 28 feet 7 nches, from where a back stope was run up to the grass roots, giving a breast of 31 feet 10 inches, and 37 feet wide. Eighty-five feet below the adit a tunnel has been commenced and run 66 feet, and will strike the ore-body at present disclosed at the bottom of the shaft 22 feet lower.

From this work 250 tons of ore have been milled as a test, the lowest being $8.40, and highest $25.60. The work thus accomplished shows at the lowest estimate 10,000 tons of ore in sight.

The Directors have set aside 50,000 shares of stock for the purchase of machinery.

ANNOUNCEMENT.—The 20,000 shares offered at $1 having been all taken, 10,000 shares are now offered at $1.50 per share until further notice. In this connection the Company begs to announce that it has purchased the Hoodlebug Mine, a property adjoining the Cheyenne, and of great proven value.

We respectfully invite the closest scrutiny and most searching investigation into the merits of this property.

R. P. CORMACK, President. R. McNAUGHT, Secretary,

Office, 61 Broadway, Room 38, New York.

THE BUELL GOLD MINING CO.,

OF COLORADO,

To be organized under the laws of the State of New York, with a capital of $500,000, divided into 100,000 shares of $5 each, full paid and unassessable. 50,000 shares of said capital will be set aside to provide funds for the further development of the property, of which 40,000 shares are now offered to subscribers at $1.25 per share.

On a Basis of $125,000 for the Property, with $50,000 Cash and 10,000 Shares in the Treasury.

There are 3000 feet on the Leavite, Kip, and Vasa lodes, all covered by United States Patents.

The improvements on the property consist of a 60-stamp mill complete, with an 80 horse-power engine for driving the same; also a 70 horse-power engine for hoisting and pumping, all in first-class condition, and inclosed in substantial stone buildings. The "Buell Mine" has produced nearly a million dollars in bullion, and is well known as one of the best gold mines in the State.

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ADVERTISERS' INDEX.

Page.

Air Compressors:
Clayton, Steam Pump Works, Brooklyn, N. Y. ... i
Griffith & Wedge, Zanesville, Ohio ... iii
Rand Drill Co., New York ... xii
National Drill and Compressor Co., New York ... xii

Attorneys and Counselors:
Drinker, Henry S., Philadelphia, Pa ... ix

Bankers and Brokers:
Ashton & Doyle, New York ... 307
Baxter & Co., New York ... 307
Handy & Cronise, New York ... 307
Hanley, W. W., & Co., New York ... 307
Van Deventer & Patton, New York ... 307
Yerkes, C. T., Jr., & Co., Philadelphia, Pa. 307

Belting and Rubber:
New York Belting and Packing Co., N. Y. ii
Gutta Percha & Rubber Mfg. Co., N. Y. ii

Blasting Powder:
Laflin & Rand Powder Co., New York ... iii
Miners' Supply Co., St. Clair, Pa ... iii

Blowers:
Wilbraham Bros., Philadelphia, Pa ... xii
Worthington, H. R., New York ... iii

Boilers, Boiler Tubes, and Steam and Water Pipes:
Blandy, H. & F., Zanesville, O ... ii
St. Louis Boiler Yard, St. Louis, Mo ... —
Worthington, H. R., New York ... iii

Bolts:
Shumway, Burgess & Co., Chicago, Ill ... —

Books and Periodicals:
American Journal of Science and Art ... ix
Brick, Pottery, and Glass Journal, N. Y. iv
Capital and Labour, London, Eng ... ix
Claxton, Remsen & Haffelfinger, Phila ... v
Colliery Guardian, London, Eng ... ix
Denver Tribune, Denver, Colo ... ix
Engineering, London, Eng ... v
Gold and Silver Mines of America, N. Y. ix
La Houille, Paris, France ... ix
Manufacturer and Builder, New York ... iii
Miners' Journal, Pottsville, Pa ... ix
Railway Age, Chicago, Ill ... ix
Spon, E. & F. N., New York ... vi
Teknisk Tidskrift, Stockholm, Sweden ... ix

Clay Mines:
Ernst, Otto, South Amboy, N. J. ... ii

Clocks:
Seth Thomas, Thomaston, Conn ... i

Coal:
Berwind, White & Co., New York ... xi
Borda, Eugene (Koh-i-noor Coal), Phila ... xi
Borden & Lovell, New York ... xi
Consolidation Coal Co., Baltimore, Md ... xi
Coxe Bros. & Co., New York ... xi
Cox & Boyce, New York ... xi
Heissenbuttel & Wells, New York ... xi
Hoboken Coal Co., Hoboken, N. J ... xi
Maryland Coal Co., New York ... xi
New Central Coal Co., New York ... xi
Philadelphia & Reading Coal & Iron Co ... xi
Swords, A. S. New York ... xi

Coal Lands for Sale:
Henderson & Camp, Wilmington, Ill ... vi

Contractors:
Blandy, H. & F., Zanesville, O ... ii

Copper Dealers:
Baltimore Copper Co., Baltimore, Md ... v

Crucibles:
Frasse & Co., New York ... —

Dividends:
Leadville Mining Co., New York ... 307

Educational:
Lehigh University, Bethlehem, Pa ... —
Royal Prussian Mining Academy, Clausthal, Germany ... i

Emery Wheels:
New York Belting and Packing Co., N. Y. ii

Engineers and Chemists:
Bradt, W. H., Leadville, Colo ... ix
Hooker, W. A., New York ... ix
Hunt, Dr. T. Sterry, Montreal, Canada ... ix
Keyes, W. S., San Francisco, Cal ... ix
Maynard, Geo. W., New York ... viii
Porter, J. A. Eureka, Nev ... ix
Randolph, John C., New York ... ix
Rolker, Chas. M., Reno, Nev ... ix
Rothwell, Richard P., New York ... ix
Stwolinski, F. de, Joplin ... ix
Wulsten, Carl, Rosita, Col ... ix
Wilson Bros. & Co., Philadelphia ... ix

Engineers' Instruments:
Gurley, W. & L. E., Troy, N. Y. ... iv
Heller & Brightly, Philadelphia ... vi
Keuffel & Esser, New York ... v
Woolman, G. S., New York ... vi

Financial:
Baxter & Co., New York ... 307

Fire Brick:
Maurer, Henry, New York ... ii
Ernst, Otto, South Amboy, N. J ... ii

Holisting Machinery:
Crane Brothers Man'f'g Co., Chicago, Ill ... x
Griffith & Wedge, Zanesville, O ... iii

Ice Machines:
Pictet Ice Co., New York ... viii

Iron Works For Sale:
Boonton Iron Works, New York ... ii

Locomotives:
Manchester Locomotive Works, Manchester N. H ... xii
Porter, H. K., & Co., Pittsburg, Pa ... vi

Machinery:
Blandy, H. & F., Zanesville, O ... ii
Dederick, P. K., & Co., Albany, N. Y ... vi
Pratt and Whitney Co., Hartford, Conn ... iii

Meetings:
Adlaide Consolidated Silver Mining & Smelting Co., Washington, D. C ... 307

Metal Brokers:
White, Edward P., New York ... ii

Mineral Wool:
Elbers, Alexander D., New York ... iii

Mining Companies:
Buell Gold Mining Co., New York ... viii
Cheyenne Gold Mining Co., New York ... viii
Massachusetts and New Mexico Mining Co., Boston, Mass ... i
Plumas National G. Mining Co., New York 307

Mining Milling and Smelting Machinery:
Aitchison, R., & Co., Chicago, Ill ... iv
Blake's Stone Breaker, New Haven, Conn. vi
Copeland & Bacon, New York ... xii
Crane Bros. Mfg. Co., Chicago, Ill ... x
Fraser, Chalmers & Co., Chicago, Ill ... iv
Forster-Firmin G. & S. Amalgamating Co., Norristown, Pa ... iii
Griffith & Wedge, Zanesville, O ... iii
Morey & Sperry, New York ... ii
Wanted, a Second-Hand Blake Crusher ... vi

Oils:
Leonard & Ellis, New York ... v

Perforated Sheet Metals:
Aitchison, R. & Co., Chicago ... iv

Patents:
Lehman, F. A. Washington, D. C ... i

Pig Lead:
Lone Elm Mining and Smelting Co., Joplin, Mo ... viii

Photography:
Rockwood, George G., New York ... i

Pumps:
Cameron, A. S., New York ... iii
Clayton Steam Pump Works, Brooklyn, N. Y ... i
Crane Brothers Manufac'g Co., Chicago ... iii
Deane Steam Pump Works, New York ... —
Knowles Steam Pump Works, New York. i
Worthington, H. R., New York ... iii

Railroads and Transportation:
Colorado Central R.R. ... ix
New York & Philadelphia New Line ... ix
Pennsylvania R.R. ... x

Rock Drills:
Am. Diamond Rock Boring Co., N. Y ... xii
Burleigh Rock Drill Co., Fitchburg, Mass xii
Ingersoll Rock Drill Co., New York ... ii, xii
Johnson Rock Drill Manufacturing Co., Boston, Mass ... xii
National Drill & Compressor Co., New York ... xii
Penn. Diamond Drill Co., Pottsville, Pa. xii
Rand Drill Co., New York ... xii
Sampson, Geo. H., Boston, Mass ... xii

Roofing:
Hyndman, W. G., & Co., Cincinnati, O ... —
Scaife, Wm. B., & Sons, Pittsburg, Pa ... iv

Rope and Blocks:
Gilbert, Hubbard & Co., Chicago, Ill ... ii

Safes and Scales:
Chicago Scale Co., Chicago, Ill ... i
Marvin Safe & Scale Co., New York ... vi

Saws:
Curtis & Co., St. Louis, Mo ...

Smelting and Refining Works:
Forster-Firmin G. & S. Amalgamating Co., Norristown, Pa ... iii
Robertson, R. J., New York ... ii
Stetefeldt Furnace Co., San Francisco, Cal. i

Steam-Engines:
Blandy, H. & F., Zanesville, O ... ii

Steam Fire-Engines:
Manchester Locomotive Works, Manchester, N. H ... xii

Steel Works:
Crescent Steel Works, Pittsburg, Pa ... v
Park, Bro., & Co., Pittsburg, Pa ... v
Quincy, J. W., New York ... v

Tackle Blocks:
Bagnall & Loud, Boston, Mass ... xii

Taps and Dies:
Pratt & Whitney Co., Hartford, Conn ... iii

Tramway:
American Wire-Rope Tramway Co., Phila. v

Valves:
Mohawk and Hudson Manufacturing Co., Waterford, N. Y ... iii

Watchman's Time Detector:
Buerk, J. E. Boston, Mass ... ii

Water Wheels:
Leffell, James, & Co., Springfield, O ... iv

Wire Rope:
Channon, H., & Co., Chicago, Ill ... iv
Copeland & Bacon, New York ... xii
Haigh, J. Lloyd, New York ... i
Hazard Mfg. Co., Wilkes-Barre, Pa ... v
Hubbard, Gilbert & Co., Chicago ... ii
Mason, John W. & Co., New York ... i
Roebling's, J. A., Sons Co., Trenton, N. J. iv